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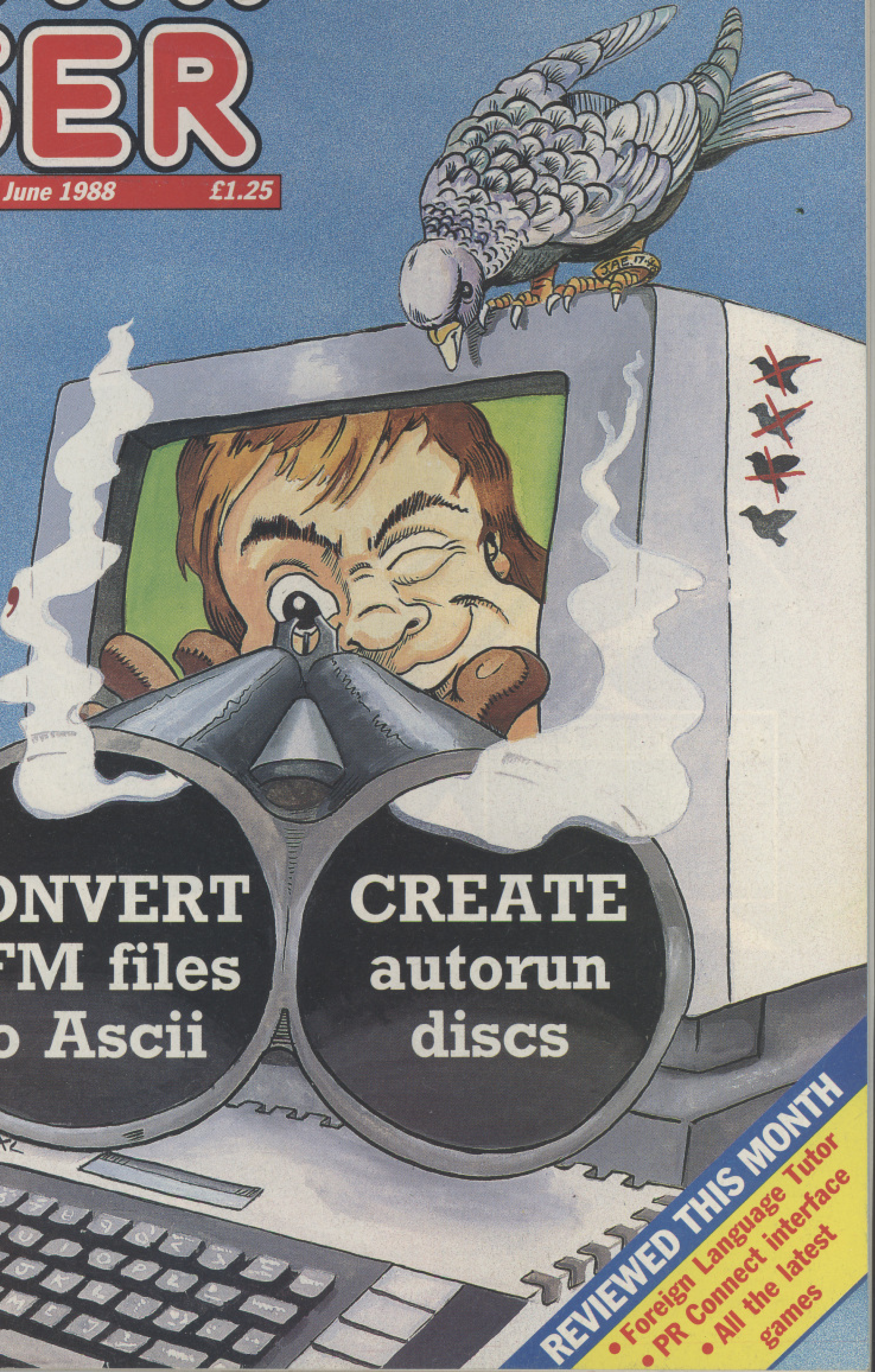
ATARI USER

Vol. 4 No. 2 June 1988 £1.25

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EIDOLON

GO clay pigeon shootin'



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REVIEWED THIS MONTH
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In this delightful game you control BLOB, the Biologically-Operated Being, navigating him through 500 action-packed screens to rebuild the unstable planet's core.

Bubble Bus' Starquake is one of the biggest-selling games for home micros, due to its incredibly-addictive gameplay and cleverly-animated graphics. It has received such accolades as Game of the Month in *Computer and Video Games,* and was awarded a *Crash Smash.*

● *What reviewer Bob Chappell said about the Atari version:*

'Starquake is top-notch fare . . . quality dripping from every byte'

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Vol. 4 No. 2 June 1988

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Contents

Get it right! II

All major listings in this issue are accompanied by checksums to help overcome typing mistakes. For full details of how they work, see the article on page 23 of the November 1987 issue of *Atari User*.

ATARI USER *exclusive!*



Add TEN new commands to Atari Basic with this latest package from Atari User.

SEE PAGE 32

ATARI USER NEWS REVIEW

Learn how to break the bank

THE odds on breaking the bank at Monte Carlo are looking up – games specialist CDS Software is on the verge of releasing Casino Roulette for the Atari.

The game caters for up to eight players, with the computer handling the chores of wheel spinning and table raking – all players have to do is place their bets.

CDS (0302 21134) has also added features to help would-be system beaters.

A statistical analysis is maintained of the fall of the ball on each of the 37 wheel numbers over the last 370 spins, and the instructions include half a dozen established betting systems for players to experiment with.

Price £9.99 cassette, £14.99 disc.

Bond's back

THE classic 1973 James Bond film Live and Let Die has re-emerged on the Atari.

A spokesman for Domark (01-947 5622) – whose earlier movie tie-ins include A View to a Kill and The Living Daylights – promises that the game is a winner.

Price £9.95 on cassette, £12.95 on disc.



Show attracts record crowds

A RECORD turnout for the latest Atari User Show saw more than 17,000 visitor converge on Alexandra Palace over the three days.

This was by far the best attendance since the series started and was double that of the previous event held at the Novotel.

Such was the demand from Atari users that organisers Database decided to extend the final day by an hour to avoid disappointing latecomers still queueing outside.

All 70 exhibitors reported business as being at an all time high, with many having to send back daily for additional stock.

Yet the real bonanza was for the visitors who were soon appeased for the delays experienced in getting in by the bargains awaiting them. Schoolteacher George Roberts saved the equivalent of his return fare to Glasgow within half an hour of entering the Great Hall.

"I must now be the best kitted out Atari 8 bit user in the country", he said. "My wife thought I was mad when I told her I was travelling all that way to a computer show. It will give me great pleasure to make her eat her words".

Even organisers Database Exhibitions admitted to being surprised by the overwhelming response.

"It could only be described as fantastic", said Michael Meakin of Database. "This has now firmly established the show as one of the premier exhibitions in the machine specific market."

Guide to top Atari gear

THE item every Atari 8 bit owner has been waiting for has arrived on the scene. A definitive guide to all the best software and hardware available has been published – and it's free.

Atari specialist retailer Silica Shop is behind the 60-page catalogue which took six months to compile and covers every possible category – cassette, cartridge and disc, home, business and education.

Silica Shop spokesman Tony Deane said: "The publication grew out of widespread consumer opinion that the Atari 8 bit market was not being supported.

"The typical end user has been feeling unloved for a long time – this is our attempt to put matters right".

Issued free with this month's *Atari User*, the guide contains 32 pages of XL and XE products – plus a special 8-page section on XE rom cartridges.

Also included is a comprehensive 4-page list of peripherals and accessories such as modems, monitors, printers, joysticks and controllers as well as books and manuals. The accompanying 16-page price list contains 1,200 items.

Jackpot for Atari adventurers

ADVENTURE games fans are going to hit the jackpot as a result of a new joint agreement.

Mandarin Software, the exclusive new entertainments software house, has joined forces with the renowned Level 9 programming team.

And the end product is the release of the acclaimed Time & Magik trilogy for the Atari 8 bit market.

The text-only adventure encompasses three award-winning titles from Level 9 – Lords of Time, Red Moon and Price of Magik. Price £14.95.

Also coming soon under the Mandarin label from Level 9 will be a game set in the Middle Ages, codenamed Lancelot.

And in addition to enjoying the adventure for its own sake, players will be able to take part in a real time hunt for a silver "grail" worth £2,000 to the finder.

The news of both titles was announced at the official launch of Mandarin Software held recently in London.

"Lancelot is a new concept in adventures", said Chris Payne of Mandarin.

He added: "And with Level 9 arguably the world's leading adventure games company, Atari users have a treat in store".

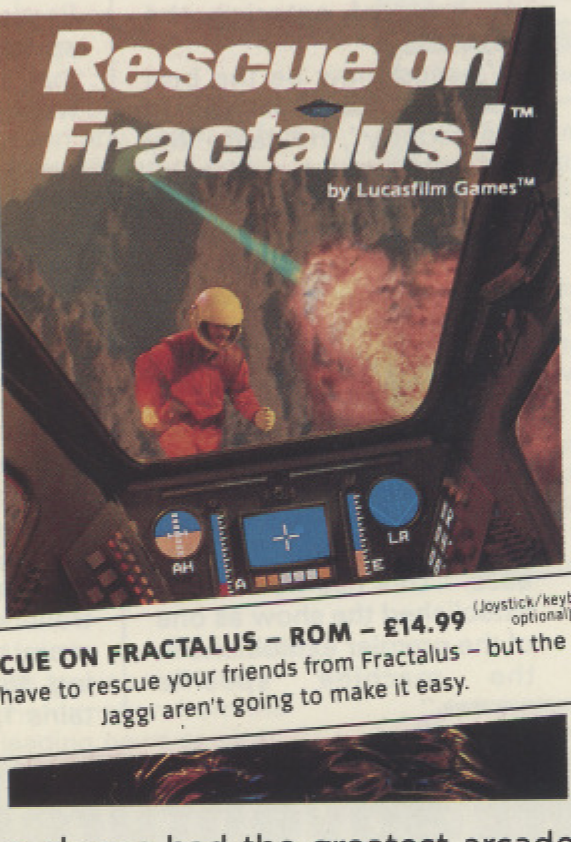
THE LATEST AND



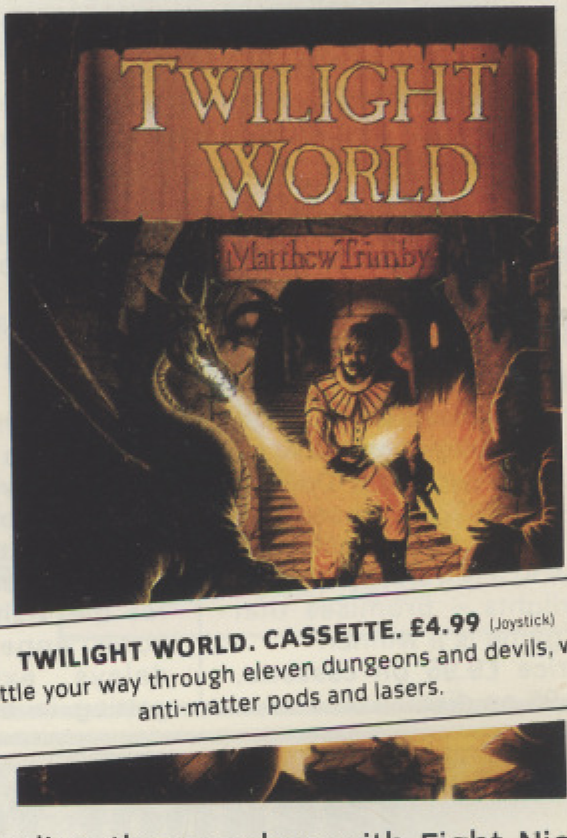
ARCHON – ROM – £14.99 (Joystick)
A battle between the forces of light and darkness. You can't take a square, you have to fight for it.



BALLBLAZER – ROM – £14.99 (Joystick)
Can you shoot the Plasmorb through the moving goalbeams while piloting your Rotofoil? For one or two players.



RESCUE ON FRACTALUS – ROM – £14.99 (Joystick/keyboard optional)
You have to rescue your friends from Fractalus – but the evil Jaggi aren't going to make it easy.



TWILIGHT WORLD. CASSETTE. £4.99 (Joystick)
Battle your way through eleven dungeons and devils, with anti-matter pods and lasers.

Atari have always had the greatest arcade games in the galaxy, now they're adding even more winners to the collection. From the high speed skills of handling a W.W.1 biplane, to the brain-aching Archon battle of wits. Whether you're landing the punches with Fight Night or using the awesome power of Thunderfox to blast the enemy, Atari give you the best combination of graphics speed and skill this side of Alpha Centauri.

ALL GAMES SHOWN ARE COMPATIBLE WITH: ATARI XE GAMES SYSTEM, ATARI

D THE GREATEST.



BLUE MAX – ROM – £14.99 (Joystick)
The thrills of W.W.1 dogfighting and bombing raids.



FIGHT NIGHT – ROM – £14.99 (Joystick/disc drive optional)
Construct and train your own boxing champ then guide him to the championship. One or two players.



THUNDERFOX CASSETTE. £4.99 (Joystick)
The Zylosian war machine is complete. Can you beat the horrendous odds in your Thunderfox?



COMPILATION CASSETTE. £4.99 (Joystick/keyboard)
Five arcade favourites on one cassette! Centipede; Star Raiders; Missile Command; Tennis; Typo Attack.

Then there is Atari's compilation cassette of all time favourites, which at only £4.99, makes it, you guessed it, the best value on Earth!

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Get more from your manager

Now you can convert HFM files to word processor files with this useful utility from GORDON SINCLAIR

IN its drive to increase sales a few years ago, Atari started to give away free software with all its computers. Those of you who bought a disc system will have received a copy of the Home Filing Manager – HFM for short.

This is an excellent program for storing all sorts of general, everyday information but it does suffer from certain limitations and one major disadvantage – you can only print one page of text at a time.

While this is fine if all you have on your data disc is a list of telephone numbers, it can be very frustrating if you have long lists of, for example, books, magazines or even recipes you require printing. It means that you have to load each one individually before printing it out.

It was from this frustration that this utility was born. It allows you to read in the information stored on a HFM data disc and convert it to a format that can be accessed by a word processor program such as AtariWriter or Mini Office II.

When first run you are asked what device you want the information transferred to. Your choices are the same drive, a second drive or the Ramdisc created by Dos 2.5.

Once this has been chosen you are prompted for the filename – a maximum of eight characters is allowed – that you want the data saved as. When this has been entered you are prompted to insert your HFM data disc into drive one. Depending on the amount of information stored on a data disc, the program will read it and write out several files adding a default extender of PT1, PT2 and so on. Once this process is complete you can load in your relative word processor and enter the newly-created files.

Comprehensive error checking routines are built into the main program and every action is accompanied by full on-screen prompts, so you can't really go wrong.

One word of warning: Write-protect your data disc in case of an accident.

PROGRAM BREAKDOWN

20-50	Disc sector read routine
60-70	Read all keyboard entries
130-140	Check to see that it is a HFM data disc
170-210	Setup variables and strings
220-530	The main program loop. Draws the title screen
590-640	Find number of pages on the data disc and the start sectors
650-720	Save the newly created data to memory or disc
830-900	Finished writing to disc routine. Also tell you how many files were written
910-940	Print a message to tell you that there isn't a HFM disc in the drive
950-1010	Print all HFM data retrieved on to the screen, within the confines of a window

```
1 REM HOME FILING MANAGER
2 REM CONVERTER PROGRAM
3 REM BY GORDON SINCLAIR
4 REM (C)ATARI USER
10 POKE 82,0:GOTO 180
20 REM  DISK SECTOR READ ROUTINE 
30 A1=ADR(B$)-INT(ADR(B$)/256)*256:A2=
INT(ADR(B$)/256):POKE 772,A1:POKE 773,
A2:POKE 1548,A1-1:POKE 1549,A2
40 POKE 769,1:POKE 770,82:POKE 1557,(A
DR(C$)-INT(ADR(C$)/256)*256)-1:POKE 15
58,INT(ADR(C$)/256)
50 POKE 778,SECT-INT(SECT/256)*256:POK
E 779,INT(SECT/256):N1=USR(1536):N2=US
R(1541):RETURN
60 REM  KEYBOARD READ ROUTINE 
70 CLOSE #1:OPEN #1,4,0,"K:":GET #1,KE
Y:CLOSE #1:RETURN
80 REM  OUTPUT FILE NUMBER 
90 TITLE$(P,P)=STR$(PASS):POSITION P+2
1,8:? PASS:RETURN
100 REM  EMPTY STRINGS 
110 TEMP$(1)=" ":TEMP$(38)=" ":TEMP$(2
)=TEMP$:RETURN
120 REM  CONFIRM HFM DATA DISK 
130 SECT=347:GOSUB 30:IF B$(44,46)<>"[]
♥?" THEN POP :GOTO 910
140 RETURN
150 REM  CLEAR WINDOW 
160 GOSUB 110:FOR X=1 TO 4:POSITION 1,
15+X:? TEMP$:NEXT X:RETURN
170 REM  START PROGRAMME 
180 MEM=FRE(0):MEM=MEM-5000:DIM B$(128
),C$(128),S1$(1),S2$(1),DAT$(MEM),TEMP
$(38),NAME$(8),TITLE$(16),STSECT(200)
190 DIM T1$(38),T2$(38),T3$(38),T4$(38
):GOSUB 110:T1$=TEMP$:T2$=T1$:T3$=T1$:
T4$=T1$:RD=1
```

Turn to Page 10 ▶

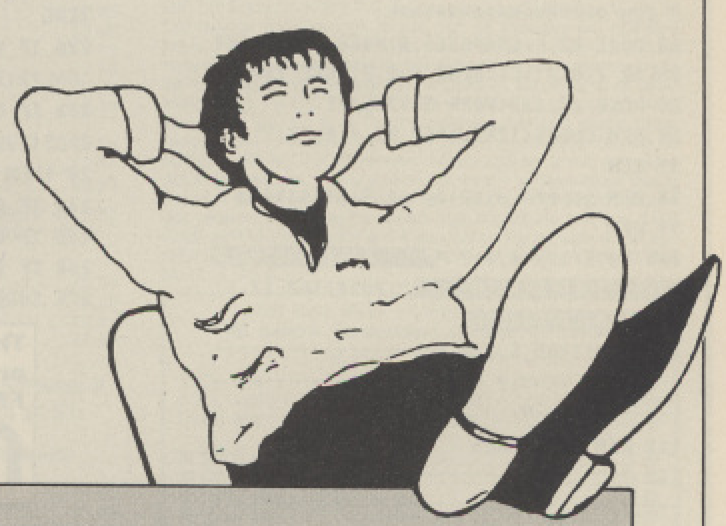
◀ From Page 9

```
200 B$(1)=" ":B$(128)=" ":B$(2)=B$:C$=B$:FOR X=1 TO 30:READ A:POKE 1535+X,A:NEXT X
210 DATA 104,32,83,228,96,104,160,0,162,128,200,185,0,0,201,61,176,2,105,32,153,0,0,202,208,1,96,76,10,6
220 REM  TITLE SCREEN 
230 GRAPHICS 0:POKE 559,0:POKE 710,29:POKE 709,21:POKE 752,1:? "┌";:FOR X=1 TO 38:? "─";:NEXT X:? "┐"
240 ? "↑|  Home Filing Manager File Converter  |":? "↑|                    |"
250 ? "↑|  By Gordon Sinclair   (c)ATARI USER  |":? "↑|                    |"
260 ? "↑├";:FOR X=1 TO 38:? "─";:NEXT X:? "┤":FOR L=1 TO 8:? "↑|";:FOR X=1 TO 38:? " ";:NEXT X:? "|":NEXT L
270 ? "↑├";:FOR X=1 TO 38:? "─";:NEXT X:? "┤":FOR L=1 TO 6:? "↑|";:FOR X=1 TO 38:? " ";:NEXT X:? "|":NEXT L
280 ? "↑└";:FOR X=1 TO 38:? "─";:NEXT X:? "┘"
290 POSITION 7,7:? "1 - Single Drive (48/64K)":POSITION 7,9:? "2 - Ram Disk (Dos 2.5) "
300 POSITION 7,11:? "3 - Twin Drives      ":POSITION 7,13:? "  -- Select System --  ":POKE 559,34:GOSUB 70
310 IF KEY=49 THEN DISK=1:GOTO 350
320 IF KEY=50 THEN DISK=8:GOTO 350
330 IF KEY=51 THEN DISK=2:GOTO 350
340 GOTO 300
350 FOR X=7 TO 13 STEP 2:POSITION 7,X:? "                          ":NEXT X
360 NAME$=" ":POSITION 3,8:? "Output File Name - D";DISK;":         .PT1 ":POKE 702,64
370 GOSUB 70:P=P+1:IF KEY=155 THEN 430
380 IF P=1 AND KEY<65 OR P=1 AND KEY>90 THEN P=0:GOTO 370
390 IF KEY<48 OR KEY>90 THEN P=P-1:GOTO 370
400 IF KEY>57 AND KEY<65 THEN P=P-1:GOTO 370
410 POSITION P+24,8:? CHR$(KEY):NAME$(P,P)=CHR$(KEY):IF P=8 THEN 430
420 GOTO 370
430 POSITION 33,8:? "    "
440 POSITION 3,8:? "DESTINATION FILE - D";DISK;":";NAME$;".PT1":POSITION 14,10:? "Correct !"
450 POSITION 14,12:? "Yes or No"
460 GOSUB 70:IF KEY=89 OR KEY=121 THEN 490
470 IF KEY=78 OR KEY=110 THEN P=0:POSITION 14,12:? "           ":GOTO 360
480 GOTO 460
490 P=LEN(NAME$):TITLE$(1,1)="D":TITLE$(2,2)=STR$(DISK):TITLE$(3,3)=":"
500 TITLE$(4,P+3)=NAME$:P=P+4:TITLE$(P,P+4)=".PT1":P=P+3
510 POSITION 7,10:? " Insert H.F.M. Data Disk":POSITION 13,12:? " PRESS RETURN "
520 GOSUB 70:IF KEY<>155 THEN 520
530 POSITION 7,10:? "Reading":POSITION 12,12:? "                    "
540 REM  CONFIRM HFM DATA DISK 
550 GOSUB 130
560 REM  GET TITLE OF DATA DISK 
570 SECT=360:GOSUB 50:TEMP$(1,18)=B$(105,123):I=121
580 POSITION 4,12:? "DATA DISK - ";TEMP$(1,18)
590 REM  FIND NO OF PAGES & START SECTORS 
600 SECT=348:GOSUB 50:TE=0
610 SE=ASC(B$(1,1))+(ASC(B$(2,2))*256):R=1:IF SE>63 THEN TE=SE-63:SE=63:SECT=349
620 FOR X=3 TO SE*2+2 STEP 2:STSECT(R)=ASC(B$(X,X))+(ASC(B$(X+1,X+1))*256):R=R+1:NEXT X:IF SECT=348 THEN 640
630 GOSUB 50:FOR X=1 TO TE*2 STEP 2:STSECT(R)=ASC(B$(X,X))+(ASC(B$(X+1,X+1))*256):R=R+1:NEXT X
640 SE=SE+TE:TE=0:ST=1:PASS=0
650 REM  SAVE DATA TO DISK/MEMORY 
660 I=1:PASS=PASS+1:TE=TE+20:IF TE>SE THEN TE=SE
670 DAT$(1)=" ":DAT$(MEM)=" ":DAT$(2)=DAT$:IF PASS=1 THEN DAT$(1,18)=TEMP$:I=76
680 GOSUB 90:FOR X=ST TO TE:SECT=STSECT(X):I=I+38
690 GOSUB 30:TEMP$=C$(3,40):DAT$(I,I+38)=TEMP$:I=I+38:GOSUB 950:TEMP$=C$(43,80):DAT$(I,I+38)=TEMP$:I=I+38
700 GOSUB 950:TEMP$=C$(83,120):DAT$(I,I+38)=TEMP$:I=I+38:GOSUB 950
710 E=ASC(B$(123,123))+(ASC(B$(124,124))*256):IF E=0 THEN NEXT X
720 IF X<TE+1 THEN SECT=E:GOTO 690
730 REM  SAVE HFM FILE TO DISK 
740 GOSUB 150:IF DISK>1 THEN 770
750 POSITION 8,17:? "Insert Destination Disk":POSITION 13,18:? " PRESS RETURN ":GOSUB 70:IF KEY<>155 THEN 750
760 POSITION 1,17:? TEMP$
770 POSITION 6,18:? "Saving Data to ";TITLE$
780 OPEN #1,8,0,TITLE$:FOR X=1 TO I-37 STEP 38:PRINT #1;DAT$(X,X+37):NEXT X:CLOSE #1:IF TE=SE THEN 830
790 ST=ST+20:IF DISK>1 THEN 660
800 POSITION 8,17:? "Insert H.F.M. Data Disk":POSITION 1,18:? TEMP$:POSITION 13,18:? " PRESS RETURN "
810 GOSUB 70:IF KEY<>155 THEN 810
820 ND=1:GOSUB 130:GOTO 660
830 REM  FINISHED WRITING TO DISK 
840 GOSUB 150:POSITION 8,17:? PASS:POSITION 10,17:? " Files Created "
850 IF PASS=1 THEN POSITION 15,17:? " "
860 POSITION 6,18:? " Press Return to Rerun ":IF DISK=8 THEN POSITION 20,18:? "for DOS  "
870 GOSUB 70:IF KEY<>155 THEN GRAPHICS 0:END
880 IF DISK=8 THEN DOS
890 RUN
900 END
910 REM  NO HFM DATA DISK IN DRIVE 1 
920 GOSUB 150:? CHR$(253):POSITION 15,17:? " ERROR ":POSITION 10,18:? "Not a HFM Data Disk ":FOR DE=1 TO 300:NEXT DE
930 GOSUB 150:IF ND THEN ND=0:GOTO 800
940 GOTO 510
950 REM  PRINT HFM DATA IN WINDOW 
960 IF RD=1 THEN T1$=TEMP$:POSITION 1,19:? T1$:POSITION 1,18:? T4$:POSITION 1,17:? T3$:POSITION 1,16:? T2$
970 IF RD=2 THEN T2$=TEMP$:POSITION 1,19:? T2$:POSITION 1,18:? T1$:POSITION 1,17:? T4$:POSITION 1,16:? T3$
980 IF RD=3 THEN T3$=TEMP$:POSITION 1,19:? T3$:POSITION 1,18:? T2$:POSITION 1,17:? T1$:POSITION 1,16:? T4$
990 IF RD=4 THEN T4$=TEMP$:POSITION 1,19:? T4$:POSITION 1,18:? T3$:POSITION 1,17:? T2$:POSITION 1,16:? T1$
1000 RD=RD+1:IF RD=5 THEN RD=1
1010 RETURN
```

Get it right!

1 CAJ (W)	150 DGS (H)	330 52P (X)	510 9H6 (Y)	690 U74 (K)	870 YSD (9)
2 CAK (3)	160 MLG (O)	340 QN9 (E)	520 V4F (2)	700 RHV (R)	880 GKP (J)
3 CAL (V)	170 DQS (E)	350 MV4 (Q)	530 TVM (D)	710 CAY (N)	890 EGR (C)
4 CAM (4)	180 TDG (J)	360 1PX (5)	540 DCW (4)	720 4VD (3)	900 D29 (N)
10 2TH (3)	190 KME (D)	370 2H6 (P)	550 PCN (J)	730 D7Y (A)	910 DO1 (L)
20 CP2 (Y)	200 Q93 (H)	380 K17 (Y)	560 DLW (R)	740 SU3 (J)	920 35F (C)
30 Q3R (C)	210 XVW (Y)	390 UOA (6)	570 UOX (J)	750 WXV (H)	930 8S7 (C)
40 2FC (U)	220 D3T (L)	400 PJN (1)	580 JU2 (C)	760 EFK (R)	940 QYG (J)
50 EW3 (2)	230 PGQ (J)	410 Y21 (4)	590 DYW (5)	770 CRM (E)	950 DH1 (N)
60 CP6 (T)	240 LWU (7)	420 QUA (K)	600 EDN (3)	780 VNA (Q)	960 86C (4)
70 3GP (4)	250 61J (T)	430 HOK (F)	610 EL6 (M)	790 UT1 (T)	970 8G9 (J)
80 CP8 (K)	260 T2U (F)	440 F5P (5)	620 OQF (C)	800 T8Y (8)	980 8PC (7)
90 E69 (A)	270 SXU (W)	450 WPO (F)	630 4CG (U)	810 VOU (C)	990 8Y9 (N)
100 CUS (4)	280 E45 (A)	460 A69 (L)	640 XPD (8)	820 PUY (H)	1000 PXY (C)
110 AWA (X)	290 VY1 (K)	470 AAN (C)	650 DGX (3)	830 D8O (P)	1010 VDK (F)
120 D3S (J)	300 SP4 (Y)	480 RNA (U)	660 RL3 (X)	840 MQH (H)	
130 CEV (P)	310 4WN (4)	490 6A7 (K)	670 1YT (E)	850 FQM (D)	
140 RP5 (V)	320 4XD (7)	500 O8W (P)	680 YXY (M)	860 CWN (Y)	

Getting Basic on the run



MICK RANDLE takes the toil out of auto-running your discs

IT doesn't take long for a new disc drive owner to discover Dos 2.5's Autorun.SYS facility. As its name suggests, it is a disc file which automatically loads and runs when the computer is switched on.

Without going into the technicalities – they were covered in detail in *Atari User* by Len Golding in April and May last year – an Autorun.SYS file can be any renamed machine code program which runs from the Dos 2.5 menu option L.

Unfortunately, if you are a Basic programmer like most of us, you can't take advantage of the facility because the Autorun file must consist of binary code, and simply renaming a Basic program will not work.

This is where Load'n'Run comes in. It allows you to create a machine code Autorun.SYS file which will run a specified Basic program. Before you can use Load'n'Run you must type in Program I, making sure you correct any typing errors with Get It Right!

Apart from a few control characters – see the typing hints in the February 1988 issue of *Atari User* – the listing is quite straightforward, except for the horrendous machine code string in line 610.

If you feel brave you can try typing it straight from the listing, but we recommend you start by entering and running Program II to create the line as a disc file in Basic LIST format. To read it from disc, type NEW then ENTER "D:LINE610.LST". Type LIST to verify that the line is in memory and then type in the rest of Program I.

When the program is first run you are prompted to enter the set of commands you want to be made into an AUTORUN.SYS file. Just enter the line exactly as you would in Basic – remembering to separate individual commands with a colon.

For instance, there is nothing to stop you displaying an eye-catching welcome message on the screen while your Basic program is loading. Just type in a command line at the prompt like this:

```
GRAPHICS 17:POSITION 4,9:PRINT #6;"Han
g on mate":RUN"D:PROGRAM.BAS"
```

You can even use wildcards in the disc filename. The following will print a message, flash the screen and run the first Basic program on the disc:

```
GRAPHICS 17:POSITION 5,9:PRINT #6; "WA
IT A BIT":FOR Q=255 TO ØSTEP -1:POKE 7
1Ø,Q:FOR X=1 TO 5Ø:NEXT X:NEXT Q:RUN"D
:*.BAS"
```

The only restriction is that your command line is limited to 120 characters. The last example just about fills it, but you can squeeze more in by using standard Basic abbreviations like ? instead of PRINT and POS. instead of POSITION. If you make a mistake or change your mind as you type your command line, you can edit it using the Delete key to erase previous characters.

Load'n'Run operates by adding your commands to a machine code Autorun file which patches into the Basic editor so that Basic thinks it is waiting for you to type in your commands. Instead, the Autorun program sends your Load'n'Run command line, which Basic duly executes.

Finally, the editor is restored to return control to the keyboard, and the Basic program is loaded and executed.

There are two things to remember when you use Load'n'Run. The Autorun file loads into Page 6, but as its sole function is to execute your loading commands, you may do anything you like with that memory after your Basic program has loaded. Just remember not to alter it with your Load'n'Run command line.

The second point is much more important. There can only be one Autorun program on a disc, so any existing Autorun.SYS file will be erased and replaced by the new one. If you want to keep the old file, copy it to another disc before using Load'n'Run.

So that's how you can autorun a Basic program easily from your disc. A useful application for this is to write a disc menu routine that displays a disc directory and then allows you to load programs with a single key press.

PROGRAM VARIABLES

BINARY$	Contains the Autorun machine code file
CODE$	Contains Load'n'Run command line which is merged with *BINARY$*
COL	Screen column position of cursor
COUNT	Number of characters in command line
DATA	Value read from data statement
I	Keyboard status
I1	Console key status – Start, Option and so on
KEY	Atascii value of keyboard input
Q	General purpose variable
ROW	Screen row of cursor

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Listing I: The Autorun creator

```
1 REM ****************
2 REM *   LOAD'N'RUN   *
3 REM * BY MICK RANDLE *
4 REM *  (c)ATARI USER *
5 REM ****************
10 POKE 82,2:GRAPHICS 0:POKE 559,0:SETCOLOR 2,0,2:SETCOLOR 4,0,2:POKE 752,1
20 POKE 16,112:POKE 53774,112
30 DIM CODE$(120):OPEN #1,4,0,"K:"
97 REM
98 REM Screen display initialisation
99 REM
100 POSITION 0,0:? "      BASIC AUTORUN.SYS FILE CREATOR      ":POSITION 14,1:? "BY MICK RANDLE"
110 POSITION 5,5:? "------------------------------":? "  ------------------------------"
111 REM 30 DASHES
115 ? "  ------------------------------":? "  ------------------------------"
120 POSITION 2,11:? "                              "
130 ? "|Enter your instructions in exactly|":? "|the same manner as you would enter|"
140 ? "|a line of BASIC in ";CHR$(34);"direct mode";CHR$(34);". |":? "|For example....                  |"
150 ? "|                                  |":? "|  GRAPHICS 0:RUN ";CHR$(34);"D:PROGRAM.BAS";CHR$(34);"  |"
160 ? "|                                  |":? "| Press RETURN when complete       |"
170 ? "|                                  |":? "| Press START to return to BASIC   |"
190 PRINT "                              ":POKE 559,34
197 REM
198 REM Get user input
199 REM
200 CODE$="":COUNT=0:COL=5:ROW=5:POKE 764,255
210 POSITION COL,ROW:GOSUB 2000:GET #1,KEY:IF KEY=155 THEN 290:REM END OF STRING
220 IF KEY<>126 THEN COUNT=COUNT+1:COL=COL+1:IF COL=35 THEN COL=5:ROW=ROW+1
230 IF KEY<>126 THEN ? "";CHR$(KEY):CODE$(COUNT,COUNT)=CHR$(KEY):IF COUNT<120 THEN 210
240 IF COUNT=120 THEN 300
250 IF COUNT=0 THEN ? "":GOTO 200
260 IF COUNT=1 THEN ? "-":GOTO 200
270 COUNT=COUNT-1:COL=COL-1:IF COL<5 THEN COL=34:ROW=ROW-1
280 CODE$=CODE$(1,COUNT):? "-":GOTO 210
290 ? "-";:IF COUNT=0 THEN ? "":GOTO 200
297 REM
298 REM Prompt user to mount disk
299 REM
300 POSITION 2,12:? "| Remove program disk from drive 1 |":? "|                                  |"
310 ? "| Mount disk for AUTORUN.SYS write |":? "|                                  |"
320 ? "| WARNING: THIS PROGRAM WILL ERASE |":? "| AND REPLACE ANY AUTORUN.SYS FILE |"
330 POSITION 22,19:? "ready    ";
340 POKE 764,255:GOSUB 2000:IF I<>12 THEN 340
397 REM
398 REM Tell user to wait a bit
399 REM
400 FOR Q=9 TO 17:POSITION 2,Q:? "                                  ":NEXT Q
410 ? "                                  ":? "|                                  |"
420 ? "| CREATING BINARY AUTORUN.SYS FILE |":? "|                                  |"
497 REM
498 REM Open AUTORUN.SYS file
499 REM
500 TRAP 3000:CLOSE #1:OPEN #1,8,0,"D1:AUTORUN.SYS"
597 REM
598 REM Process AUTORUN.SYS file
599 REM
600 DIM BINARY$(130+LEN(CODE$))
610 BINARY$="[illegible]XXXXXXXXXXXXXXXXX"
620 BINARY$(5,5)=CHR$(76+LEN(CODE$)):BINARY$(36,36)=CHR$(34):BINARY$(60,60)=CHR$(34)
630 BINARY$(63,63)=CHR$(155):BINARY$(67,67)=CHR$(LEN(CODE$))
635 DATA 255,255,226,2,227,2,0,6
640 FOR Q=LEN(CODE$) TO 1 STEP -1:BINARY$(LEN(BINARY$)+1)=CODE$(Q,Q):NEXT Q
650 FOR Q=1 TO 8:READ DATA:BINARY$(LEN(BINARY$)+1)=CHR$(DATA):NEXT Q
660 DATA 255,255,226,2,227,2,0,6
697 REM
698 REM Write AUTORUN.SYS file
699 REM
700 FOR Q=1 TO LEN(BINARY$):PUT #1,ASC(BINARY$(Q,Q)):NEXT Q:CLOSE #1
797 REM
798 REM tell user it's all done
```


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PROGRAM BREAKDOWN

- **10-30** Disable the Break key but still allow disc access. Poke 559,0 is used to switch off the screen
- **100-190** Print the screen display. The poke in line 190 re-enables the screen, which was disabled in line 10. This dodge speeds up programs by as much as 30 per cent
- **200-290** Build the command line. This routine handles the positioning of the cursor and the construction of a string containing your instructions
- **300-330** Give an extra prompt and warning
- **400-420** Print an information message
- **500** Opens a new autorun file
- **600-660** Create the Autorun program: The length depends on the length of your command line so the machine code string cannot be DIM'd until line 600. Your commands are added to the string in line 610
- **700** Writes new autorun file
- **800-830** Print a message telling you that the program has done its job
- **820** Contains a useful feature to detect keyboard input: Location 764 always contains a code for the last character typed – not the Atascii number, but a special internal code in which 255 means that no key has been pressed.

  By Poking 764 with 255 in line 810, the program will loop at line 820 until one is pressed
- **2000-2040** Flash a home-made cursor. Changing the question marks in lines 2000 and 2010 will change it to whatever character you wish
- **3000-3040** Error trap: Location 195 contains its number. Although there are several possibilities, the most likely are:
  - Attempting to delete and replace a locked Autorun file (167)
  - Attempting to write to a non-Dos or an unformatted disc (144)
  - Attempting to write to an empty disc drive (144)

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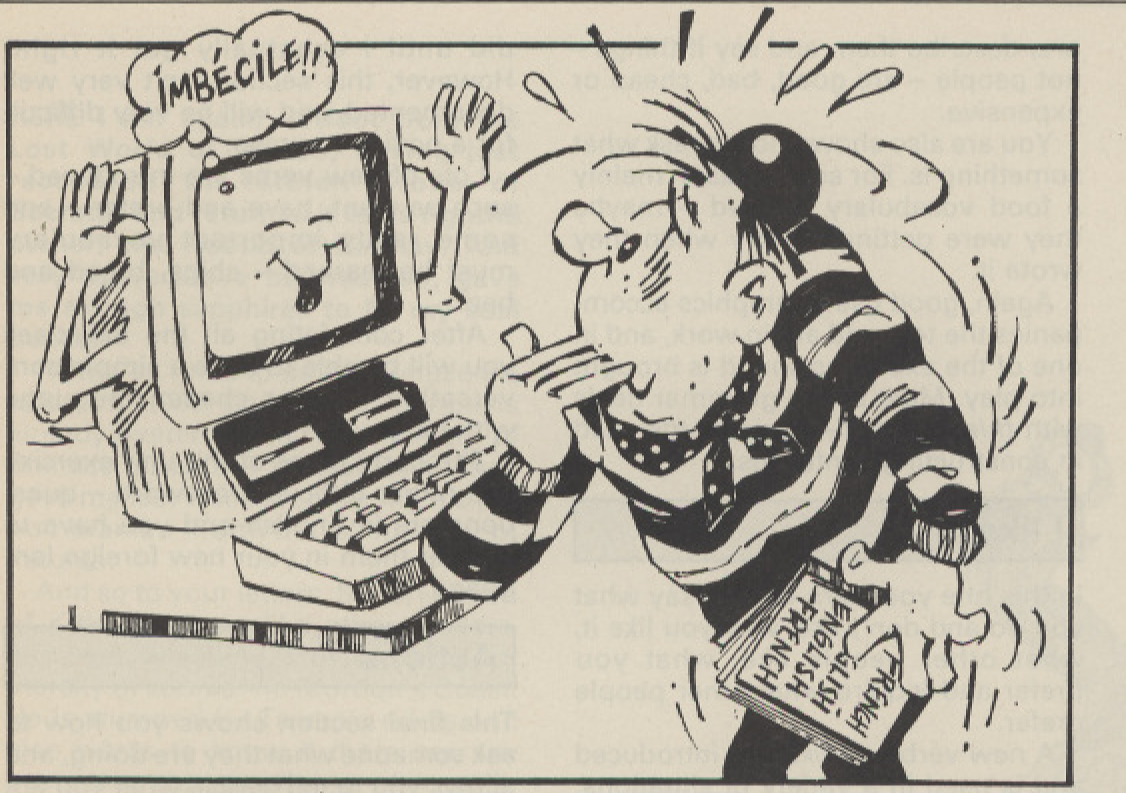
```
799 REM
800 POSITION 2,19:? "|           AUTORUN.SYS
 FILE WRITTEN        |":? "|
                    |"
810 ? "|      PRESS  RETURN  TO CONTINUE
    |":POKE 764,255
820 IF PEEK(764)=255 THEN 820
830 RUN
1997 REM
1998 REM Subroutine to flash cursor
1999 REM
2000 FOR Q=0 TO 15:I1=PEEK(53279):I=PE
EK(764):? "?←";:IF I<>255 OR I1<>7 THE
N 2020
2010 NEXT Q:FOR Q=0 TO 15:I1=PEEK(5327
9):I=PEEK(764):IF I1=7 AND I=255 THEN
? "?←";:NEXT Q:GOTO 2000
2020 Q=16:IF I1<>7 THEN POKE 82,2:GRAP
HICS 0:NEW
2030 IF I=39 THEN POKE 694,ABS(PEEK(69
4)-128):GOTO 2000
2040 RETURN
2997 REM
2998 REM Error trapping routine
2999 REM
3000 IF PEEK(195)=167 THEN 500
3010 POSITION 8,19:? "? ERROR ";PEEK(1
95);" ENCOUNTERED ":? "|
                    |"
3020 POSITION 8,21:? " PRESS RETURN TO
 GO ON ?":CLOSE #1:POKE 764,255
3030 IF PEEK(764)=255 THEN 3030
3040 RUN
```

Listing II: Generator for line 610

```
1 REM LINE 610 CREATOR
10 ? :?
20 ? "MOUNT WORKDISK IN DRIVE 1"
30 ? "AND PRESS RETURN":?
40 POKE 764,255
50 IF PEEK(764)=255 THEN 50
60 OPEN #1,8,0,"D:LINE610.LST"
70 REM
80 REM
100 PRINT #1;"610 BINARY$=";CHR$(34);
110 FOR Q=1 TO 67:READ DATA:? #1;CHR$(
DATA);:NEXT Q
120 FOR Q=1 TO 16:? #1;"X";:NEXT Q
130 ? #1;CHR$(34)
140 CLOSE #1
150 ? "ALL DONE":END
160 REM
1000 DATA 255,255,0,6,32,6,160,15,185,
0,228,153,61,6,136,16,247,169,31,141
1010 DATA 65,6,169,6,141,66,6,169,61,1
41,33,3,169,6,141,88,3,96,206,60,6,48
1020 DATA 8,172,60,6,185,77,6,208,12,1
69,0,141,33,3,169,228,141,88,3,169,88
1030 DATA 160,1,96,255,255
```

Get it right!

LINE	CHSUM	LINE	CHSUM	LINE	CHSUM
1	CAJ (W)	260	6YG (C)	650	836 (J)
2	CAK (3)	270	JSJ (O)	660	KGV (N)
3	CAL (V)	280	9YT (H)	697	EEX (S)
4	CAM (4)	290	H2M (U)	698	EGX (P)
5	CAN (W)	297	EET (L)	699	EJX (S)
10	RJ6 (V)	298	EGT (R)	700	T7C (S)
20	MJV (F)	299	EJT (L)	797	EEY (M)
30	UX8 (L)	300	EY2 (Q)	798	EGY (T)
97	DK9 (7)	310	A3A (Q)	799	EJY (M)
98	DP9 (M)	320	J54 (R)	800	5XU (Q)
99	DT9 (7)	330	2PY (D)	810	7HS (D)
100	GKU (7)	340	J43 (9)	820	L6M (2)
110	2FV (6)	397	EEU (O)	830	DQR (W)
111	D1S (8)	398	EGU (A)	1997	EUN (W)
115	HYH (8)	399	EJU (O)	1998	EVN (V)
120	1JY (P)	400	MTY (2)	1999	EWN (W)
130	XAE (S)	410	4MH (Q)	2000	EUH (D)
140	Q7J (F)	420	HW4 (6)	2010	PQ1 (6)
150	DUO (D)	497	EEV (8)	2020	UG1 (D)
160	RC1 (F)	498	EGV (5)	2030	OSK (V)
170	OXD (N)	499	EJV (8)	2040	VKL (U)
190	49F (F)	500	6DV (H)	2997	EUP (R)
197	EES (5)	597	EEW (Y)	2998	EVP (T)
198	EGS (E)	598	EGW (L)	2999	EWP (R)
199	EJS (5)	599	EJW (Y)	3000	S7Q (7)
200	QW9 (X)	600	VLD (4)	3010	4YK (U)
210	YW6 (N)	610	44A (O)	3020	GVU (8)
220	VW8 (R)	620	YHV (N)	3030	SLJ (1)
230	DKV (4)	630	HW6 (Q)	3040	DFL (R)
240	LA3 (3)	635	KEV (H)		
250	787 (E)	640	FXC (P)		



Mind your language...

RUTH JAMES assesses four cassette-based Eurospeak courses for the Atari

WITH the holiday season upon us panic looms in homes up and down the land. The hotel is booked, so is the flight and Mrs Smith at number 26 is going to look after the goldfish for the fortnight you're away.

But you've just remembered something: You can just about manage to speak the English language, never mind any other.

Fear not, help is at hand in the shape of Longman's Conversational French, German, Italian and Spanish language tutorials. They're comprehensively written programs for any Atari home computer owner with a cassette deck. Recommended for use by people 14 years old or over – and it doesn't matter how much over you are – who want to learn a language from scratch.

Each course is split into 10 units spread over five cassettes. Each tape contains several Basic programs as well as the necessary audio material to help you understand pronunciation and accents.

As well as the cassettes you are provided with a very informative course booklet which explains every detail of the individual units you are working on. Each one is split into two or three learning phases which can be categorised as study, practice and activities. There is a also a grammar and vocabulary summary after each.

The best way to describe the course is to explain each unit individually. I'll use French as an example, as this is the language I am most fluent with – although I have a working knowledge of them all. So, here we go:

About you

The first section deals with telling you how to greet people, introduce yourself, state your nationality and so on.

All sections are accompanied by a drawing of a man or woman who talks to you. Words or phrases are displayed on screen as they are played or spoken through the TV speaker.

This is a very useful feature as it enables you to see what a word looks like as well as what it sounds like. You can repeat the word and thus develop your accent.

There are a variety of exercises ranging from the straight repeating of words to think, choose and repeat where you have to select the correct answer from a choice of two. You can even listen to a conversation between two people then answer questions about the subject they discussed. While all this is going on various graphics are displayed to add to the mood. For example, a TV set and sofa is drawn with two sticks people sitting down as different questions about the surroundings are asked.

The most demanding section is the making up sentences exercise where you choose one word or phrase from each of four lists. The end sentence must make sense and be grammatically correct.

A correct answer is rewarded with a fanfare and sometimes, a *très bien*. A wrong answer gains you what can only called a computerised raspberry.

Don't worry if you don't grasp an exercise straight away because you're given the option to repeat it.

The accompanying course book complements the tape exercises, explaining what is happening all the time and teaching you the correct grammar to use – such as masculine and feminine endings, the use of *de* and forming the negative verb.

Yourself and others

Here you are shown how to ask how someone is, how to reply when someone asks you how you are and various other courtesies.

This section follows the style of unit one with the same kind of exercises. However, it does have my favourite instruction of the whole course: "Look, listen and take the man's part"!

Most of the tape time is used up on oral comprehension. You listen to a conversation and then answer a multitude of questions about it. As this style is repeated the exercises get more and more complex.

You have now reached the stage where you must learn to count up to nine in your new language, make requests, reply to requests and ask permission to do something or ask someone to do something for you.

Most examples used are to do with hotel situations and booking in and out of your room – an extremely useful feature for a program that will be predominantly used by holidaymakers.

A grammar section is included in the course book for this section and it takes a little look at verb endings, but nothing too frightening.

Polite replies also feature strongly, if you don't finish a sentence with thank you it's marked wrongly.

Finding the way

The thing that unnerves me the most is getting lost in an unfamiliar place, and worse than that is getting lost in

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◀ *From Page 15*

an unfamiliar foreign country. So I was very pleased to see a section showing you how to ask directions and giving an adequate number of examples in doing so.

It also compares *can I* with *could you* so you can learn to recognise if someone is asking or offering things to you and the all-important and life-saving phrase *please speak more slowly* is mentioned.

The next unit is succinctly entitled Where and is designed to teach you how to ask where people are or where they have gone. On other sections of the course wrong answers are simply ignored, but this unit points them out to you and asks you to remedy them.

It would have been nice to see this put to use consistently throughout all 10 units. How are you supposed to correct a mistake if you don't know what it is?

However, the section does fall prey to the dreaded unerase syndrome – if you accidently select the wrong answer there is no way to erase it and enter a new one. This can be frustrating at times.

Graphics are put to full use in this exercise and on-screen text is constantly erased in a new and more novel way all the time.

Unfortunately, as the exercises get harder the grammar gets more involved – luckily it's well detailed in the course book.

When

Next we move on to deal with telling the time and how to refer to a particular time within a conversation. To help you with this you are required to revise numbers, spelling and pronunciation. As with the other sections it's incredibly thorough – you learn to say o'clock, quarter past, quarter to, half past and lots of permutations of different times using them.

To help you revise the maths part a little game is brought into use – in it you have to add up some very simple figures. At least the authors don't doubt your mathematical literacy.

Some particularly useful vocabulary is now introduced: Open, close, arrive, leave, embassy and train are all comforting phrases to know.

After using the section I was pleased to note you can now remove a wrong answer and insert the correct one by pressing the spacebar. What I don't understand is that if this section can have it – why can't the others?

Describe it

When you have studied the next unit you should be able to say what things are, describe them and say if things – not people – are good, bad, cheap or expensive.

You are also shown how to ask what something is. For some reason mainly a food vocabulary is used – maybe they were getting hungry when they wrote it.

Again, good use of graphics accompanies the text and audio work, and in one of the exercises sound is brought into play. Most of the grammar deals with *this* and *that* – basic words used in constructing sentences.

I like

In this one you learn how to say what you do and don't like, why you like it, what other people like, what you prefer and inquire what other people prefer.

A new verb – *to like* – is introduced and is used in a variety of situations. Its common usage gets across what a useful word it is.

It's interesting to note that all the vocabulary used in this unit – and all the others – is of the everyday kind you would always hear in a bar or restaurant in a foreign country. For instance, *why* and *because* are introduced for you to use in the construction of sentences.

Within the realms of creating sentences a very original game is used – the fruit machine. A random selection of words is displayed on the reels and after they have finished spinning you can nudge them to form a sentence.

Once you're happy it's grammatically correct you can press Return. If you're right you win and coins appear to drop out.

Grammar in this unit consists of agreements – *e*, *es* and *iono* – which are tagged on to the end of a word to indicate whether it's masculine/feminine or singular/plural.

It's all kept very simple and, as it is continually stressed, easy to employ.

I want

I want doesn't get, except in this program. You're shown how to ask if something is available, what you do or don't have and how to say what you do or don't want.

After using this section I felt I could buy or eat food anywhere in Europe – the exercise is very comprehensive and covers every little detail.

Using the same style as before to ask questions, the program goes on to test you to the limit and uses graphics and sound effects to give the whole thing a feel of realism.

One of the exercises of this unit totally flummoxed me as it deals with *of* and *of the* or I should say *de, de la, du* and *des*. As usual, you are given the option to repeat the exercise, and I did until I eventually got it right. However, this section isn't very well documented, and will be very difficult for a novice to grasp.

Lots of new verbs are introduced – such as want, have and prefer – and some really important vocabulary must be learned – chips, bread and beer.

After completing all the exercises you will be able to have a simple conversation in your chosen language with ease.

The party piece of the unit exercise is a rather difficult crossword – questions are in English and you have to answer them in your new foreign language.

Actions

This final section shows you how to ask someone what they are doing, and allows you to tell people what you are doing. For example, *Je lis le journal* means that you are reading the paper, and many other examples of actions are given.

As with some of the other units, this one gets a little excessive with its revision and I must admit to getting bored with it. The grammar section deals with verb endings and both present tense and past – as in a previous unit.

The last word

All the units contain a high spoken content – conversations and quick repeats make them very interesting and fun to use.

Supporting the tapes and the grammar exercises are several activities in the course book. Like the tapes themselves they have a heavy holiday bias and range from writing letters to pen pals to filling in hotel registration forms.

They're all very useful and well worth spending plenty of time working on.

One major complaint I have is that your tape must be left with the play key depressed all the time. This can lead to a flattened pinch wheel and future trouble for you and your recorder.

All in all, the Longman tutorials are excellent value for money and a must for all prospective holidaymakers. GCSE/A level students will find them very useful as a medium to revise from – they certainly taught me a thing or two.

Happy studying, and *bon voyage!*

Product: Longman's Conversational French, German, Spanish and Italian
Price: £9.99
Supplier: Atari World, 11 Fennel Street, Manchester M4 3DU.
Tel: 061-834 4941



Colourful confusion...

by Rouloc

HERE I am again, hotfoot from the Lost World of Wazzit, having just recovered the stolen Stone of Socrates and returned it to its rightful owner, the Nabob of Bobnay. And very appreciative he was too, gave me enough sapphires to fill my coal bunker.

However, I had to politely refuse his offer of 1,000 goats, the lounge is already overcrowded with the herd of Chinese cows the Viceroy of Clunge gave me last week for rescuing his pet pomeranian from the slime pits of Petunia.

And so to your letters. Simon Brown of Kidderminster, like other readers, has been wrestling with Tarzan – not literally of course – in Mordon's Quest. He is stumped by Tarzan's riddle and also wants to know if there are any hint sheets available for this adventure.

The solution to the riddle and another problem is revealed below, but so far as I am aware there are no hint booklets for it.

My thanks to Darren Teather of Bradford and Mrs Jean Gothard of Rayleigh, Essex, for help with this part of Mordon's Quest. In return, Jean would like to know the password at the adamantium door. Similarly, James Townson of Harrogate wishes to know how to pass the portal.

Darren has completed this adventure and has promised to send in a complete solution soon. However, in the meantime he has kindly offered to answer reader's queries on Mordon's Quest directly if they care to write to him at 21 Northcliffe Drive, Thornton, Bradford, West Yorkshire, BD13 3EA. Please remember to enclose a stamped addressed envelope.

The next reader has omitted to sign his or her name – I'll call him Mr X – but comes from Horwood Close in Headington, Oxford, so will know who I mean. Mr X has stuck his neck out and nailed his colours to the mast – there's a mixed metaphor there somewhere – and sent in a list of his 18 favourite adventures, the top 10 of which appear in the panel.

Glad to see Hitchhiker, Stationfall and Colossal Adventure near the top, together with a goodly dollop of other Level 9 adventures.

Must say that I didn't enjoy Lapis Philosophorum (16) all that much, but Mindshadow (13) and Dallas Quest (15) were quite enjoyable as I recall.

Although he hasn't included them in his top 18 as they are strategy games rather than true-blue adventures, Mr X rates the two Alternate Reality games highly. Now let's hear from some other readers on the subject of personal favourites.

I have been caught out by Mr S. D. Paskin of Worthing. He is the only one to have written in saying the statement I made concerning my name in the December issue of *Atari User* doesn't stand up. I said that Rouloc was simply the word colour written backwards but, as Mr Paskin astutely spotted, that would spell Ruoloc.

The truth, as many of my regular readers will know, is that although I am pretty clever at clambering around dungeons and quite a dab hand with a broadsword, I am a bit of a moron when it comes to magic. Yes, you've guessed it, members of the jury – I am a rotten speller! And there, your honour, I rest the rather pathetic case for the defence.

Many thanks to Paul Suttle of New Eltham, London, Paul Murtough of Exmouth, Hans Hagenstrom from

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MR X's RAVES

1 Snowball
2 Hitch Hikers Guide To The Galaxy
3 Stationfall
4 Colossal Adventure
5 The Pawn
6 Adventure Quest
7 Return To Eden
8 Worm In Paradise
9 Dungeon Adventure
10 Leather Goddesses of Phobos

◀ *From Page 17*

Vasterfarnebo in Sweden – your command of the English language is superb Hans – and J. Sweeney of Nottingham for their stimulating letters and generous help with Alternate Reality: The Dungeon. A selection of Dungeon hints is published here.

Paul Suttle says that if readers with Dungeon problems wish to ring him on Exmouth 267945 before 10am or after 8pm most days, he will try to help. Another reader in Sweden, Mathias Andersson from Forserum, would like a few hints for Scott Adams' Mission Impossible. Happy to oblige, Mathias.

Next month I hope to let you have a fair-sized portion of tips for Ultima IV, culled with the aid of expert assistance from C. Seymour of Liverpool, Hans Hagenstrom – again – and Brian Standing of Port Talbot.

Until then, keep your sword sharp and your lamp trimmed.

HINTS AND TIPS

Alternate Reality: The Dungeon

- Do not exchange Morgana's tiara for the mirrored shield as it regularly restores your hit points while wearing it. Instead, find a pair of blue suede shoes or a leather jacket for the horse.
- To defeat the Devourer, don't carry too much. Learn the Temporal Fugue spell and use it with a weapon such as razor ice.
- Version 2.0 is bug-ridden. If you find Death's Door right after meeting Acrinimiril, that's one of them. So save your game after dealing with him then power off. Restart and you will be safely returned to the Dungeon entrance. You must visit Acrinimiril three times. The real Death's Door is down on the third level.
- To get past the three doors, go through the middle one, take the first door on the left twice then take the middle one twice. You should now be in a large hall.
- Try crossing the River after midnight but before 1am and giving copper to the boatman.



Mordon's Quest

- If you look at your map, you might see that a certain part of it resembles a Kermit-like creature – and there's your answer to Tarzan's riddle.
- Sacrifice the jade amphibian to the waterfall to pass through the cascade.

Mission Impossible

- Search the saboteur.
- Throw the recorder through the window.
- Return to the chair and press the white button.
- Kick the door of the control room.

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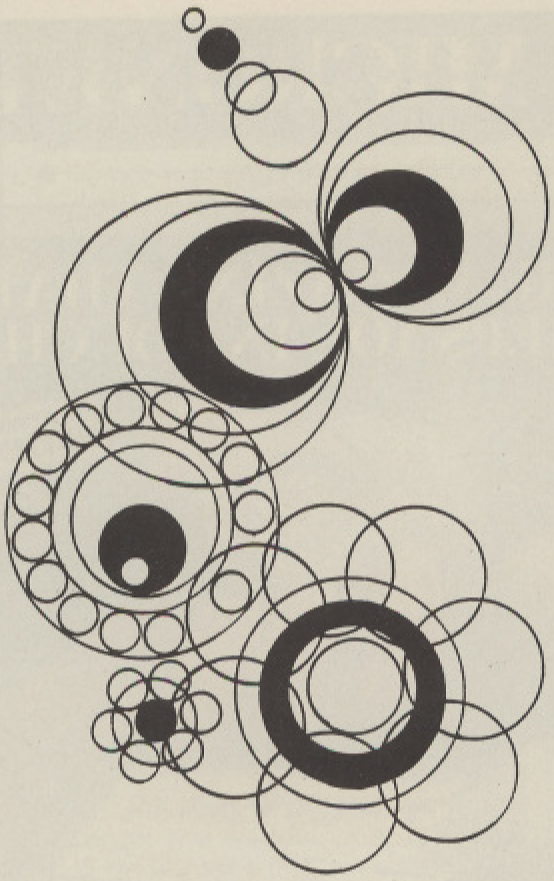
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MICRONET

5 LINERS



ROTATE
from Frank Neiss

ONE thing Atari home micros have that other computers don't is the GTIA custom graphics chip. Its superb features allow you to create some very interesting visual effects, especially in the low resolution, high colour GTIA modes – 9, 10 and 11.

While experimenting with these modes I found that it is easy to create the effect of rotation on screen by simply POKEing to the colour registers very quickly. To enable the program to run fast enough a machine code routine is used to alter the registers and produce a stunning visual display.

PROGRAM BREAKDOWN

- **1** Sets the Graphics mode, holds the machine code string and sets the colour registers
- **2 – 4** Draw the circles on the screen using SIN and COS curves
- **5** Activates the machine code routine using the USR command

```
10 GRAPHICS 10:DIM A$(90):A$="h[illegible]AAAAAA":FOR L=711 TO 705
STEP -1:X=X+2:POKE L,X:NEXT L:X=0:C=9
20 FOR L=0 TO 6.5 STEP 0.1:C=C-0.5:IF
C<1 THEN C=9
30 X=SIN(L)*5:Y=COS(L)*20:COLOR C:FOR
K=20 TO 170 STEP 40:FOR D=7 TO 73 STEP
 10:PLOT D,K:DRAWTO D+X,K+Y
40 NEXT D:NEXT K:NEXT L
50 A=USR(ADR(A$)):FOR L=0 TO 10:NEXT L
:GOTO 50
```

Get it right!

10 AF5 (4)
20 Q8O (S)
30 AYW (F)
40 HOR (5)
50 WJJ (Q)



PATTERNS
from James Cox-Davies

AFTER working out how to draw circles on my Atari, I decided to write a program to draw interesting circular designs by rotating a line around the circumference of a circle.

As the program stands, a multitude of different pattens can be created by inputting four values for size (M), style (N), radius (R) and space between the next plotted point (P). Here are some interesting numbers for you to enter:

M	N	R	P
120	99	80	60
300	120	80	60
120	120	80	60

The first two inputs can be from 0 to 9999999 with the third from 0 to 80 and the final point can range from 20 to 200 – remember to press Return after each.

More shapes can be created by changing the formula held in the brackets on line four, for example try changing it to read:

```
PLOT X+R*SIN(A-N+M),Y+R*COS(A-N)
```

The program can be expanded to incorporate more complex drawing routines or you can make it remember inputs and so create an ongoing database of your favourite patterns.

PROGRAM BREAKDOWN

- **1** Prints a message to prompt an input for the four main variables and sets a Graphics mode 8 screen
- **2 – 3** Set the background and character colours. Prints the values for M, N, R and P then sets the X, Y coordinates
- **4** Start of the FOR...NEXT loop
- **5** Ends the loop and then goes to line one to get new inputs

```
10 PRINT "ENTER VALUES FOR M AND N(0-9
999999)AND RADIUS(0-80),AND P(20-200)"
:INPUT M,N,R,P:GRAPHICS 8
20 SETCOLOR 2,0,0:SETCOLOR 1,3,14:PRIN
T "M=";M;"   N=";N;"   RADIUS=";R;"
P=";P:X=150:Y=80:RA=R:PA=P
30 COLOR 1
40 FOR A=0 TO 2*3.142 STEP (2*3.142/P)
:PLOT X+R*SIN(A+N),Y+R*COS(A-M):DRAWTO
 X+R*SIN(A-N),Y+R*COS(A+M)
50 NEXT A:GOTO 10
```

Get it right!

10 WMG (H)
20 WNX (S)
30 KL3 (5)
40 6HD (G)
50 W2O (E)

And now – 25 liners!

THERE is only so much that can be done in five lines – and our clever *Atari User* readers have done it all.

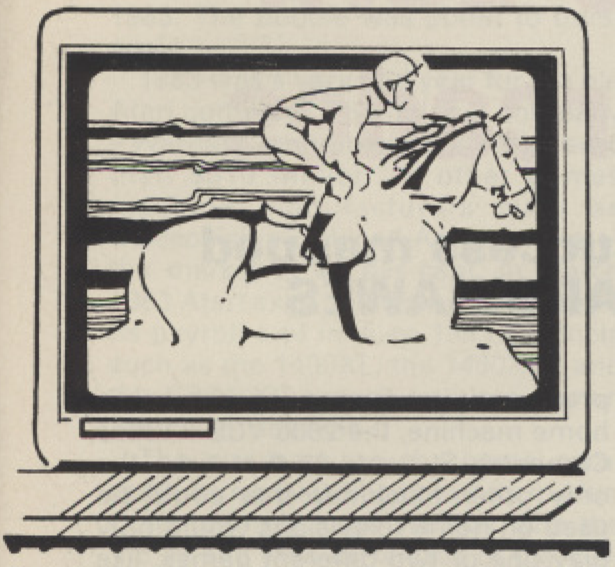
For this reason, and in response to popular demand, we are extending the limit to 25 lines and increasing the space available for program description and line breakdown. We'll still pay £25 for any we publish.

So, if you have any programs that you would have sent but for the line restrictions – send them now.

Remember, they must be on disc or tape together with the documentation – preferably as a word processed file – to:

Shorts, Atari User, Europa House, Adlington Park, Adlington, Macclesfield SK10 4NP.

We offer £25 for each routine published



SHOW TIME
from Jake Smith

HERE is a simple program that displays the time when you press the Start key. It works by setting up a machine code routine in page 6 that works during the VBI – vertical blank interrupt. In simple terms this means you can still program while the routine keeps track of the correct time.

Due to the restricted space of five lines, several control characters have been used in the listing to keep the size down. They can be obtained by pressing Control+P, Control+comma (,) and Control+T.

You will also need to enter POKE 82,0 to remove the left hand screen margin to give you extra line length.

Having typed in the program and checked it using Get it Right!, you can run it. After a few seconds the routine will have been installed and the familiar READY prompt will appear. You can now enter the time.

This is done using the USR command in this format:

```
Z=USR(1536,HH,MM,SS)
```

with HH, MM, SS being hours, minutes and seconds respectively. Remember to put a zero in front of any single digit. After setting the time, you press Start to display it on the top line of a Graphics 0 screen.

Changing graphics mode will erase the clock from the screen. Unfortunately, the clock can only be displayed in Mode 0.

If you want to read the time from within your own programs, just PEEK addresses 1789 to 1791 for hours, minutes and seconds respectively.

```
10 DIM A$(999):A$="♣555Z●5♥)♣55Z●t♥)♣5
5Z●u♥)♣Ev♥D♣Z♥E%♣v♥)♣Z♥F%♣v♥#♣R♥7♣%-●#
♥B●F?♥)●F♥J●#s♥)♣Z●r♥)♣M♥#♣v●C♥C♣e♥)●#
t♥)♣Z●"
20 A$(102)="r♥)♣M♥&♣v●F♥C♣e♥)♣o♥#●3)♥)
♣j♥C♣i●^V♥K●Fk#=♥)●;♥7♣]♥'o●X6♥#♣r♥7●C
=♥)●?♥7♣]♥&o♣#♥)●#=♥)♣6♥U♣Z●=♥)●du♥)♣v
♥^●Cu♥"
30 A$(210)=")♣]♥&o♣#♥)♣v♥#♣Z●u♥)●dt♥)♣
v♥^●Ct♥)♣]♥&o♣#♥)♣v♥#♣Z●t♥)●ds♥)o♣#♥)♣
Z●)♥)♣Zv♥)♣o♥+●#r♥)♣f●C♥)♣v♥#1●C♥)M●?♥
-♣":I=1
40 A$(314)="]♥(●_♥-●dC♥)●@Ff♥;♣6♥3♣f●D
♥)●/C♥)♣6♥3♣f●C♥)♣-♥UWLPH0":B=B+1:N=AS
C(A$(B,B)):A=N<21:W=A*W+(N>20)*N:IF A
THEN 40
50 POKE I+1535,((W=0)*N-35)+((W=16)*(N
+86))+((W=20)*(N+173)):I=I+1:IF I<206
THEN 40
```

Get it right!

10 FYX (E)
20 S2D (8)
30 OUN (O)
40 W5O (V)
50 85V (F)

DERBY
from Dave Shakespeare

WITH the racing season in full swing, here is a mini program that draws five horses racing across the screen. It then displays the number of the winning horse before running the race again.

Re-defined characters are used to represent the horses, with random numbers used to decide which one wins. To start the game hit any key.

PROGRAM BREAKDOWN

- **10** Sets up an array to hold the horses positions – set to zero at the beginning. Then sets up a safe area of memory for the new character set and reads the data in
- **20** POKEs the data in to create the new character set and completes the loop to line 20. Holds the first set of data
- **30** Sets the colours for the horses and holds the second set of data
- **40** Prints the horses at the horizontal position held in the array *A*. Loops back if it is the start of the game or waits for a keypress
- **50** Assigns a random number to the variable *X* between one and five and increases *A(X)* by one. If a horse hasn't won it loops back to line 50. If a horse has won it prints the number of the winning horse and re-runs the program

```
10 DIM A(5):FOR T=1 TO 5:A(T)=0:NEXT T
:POKE 106,PEEK(106)-5:GRAPHICS 28:POKE
 764,255:B=PEEK(106)+1:POKE 756,B:C=B*
256:FOR D=24 TO 79:READ E
20 POKE C+D,E:NEXT D:DATA 0,0,0,60,63,
20,20,60,0,0,0,0,0,0,42,42,60,63,63,60
,60,60,186,186,32,168,232,234,162,160,
160,128
30 POKE 712,16:POKE 709,230:POKE 710,1
54:P=764:DATA 42,42,42,32,32,32,32,32,
186,186,182,0,0,0,0,0,160,160,160,160,
32,32,32,32
40 FOR D=1 TO 21 STEP 5:S=S+1:POSITION
 A(S)+1,D:? #6;" #":POSITION A(S),D+1:
? #6;" $%&":POSITION A(S),D+2:? #6;" '
()":NEXT D:S=0:ON PEEK(P)=255 GOTO 40
50 X=INT(RND(0)*5)+1:A(X)=A(X)+1:ON A(
X)<35 GOTO 40:GRAPHICS 18:? #6;"WINNER
 IS NO.";X:FOR D=1 TO 1000:NEXT D:POKE
 106,160:RUN
```

VARIABLES

A()	Holds the horizontal position of each horse
X	Randomly updates the horses *X* position by one
T, D, C and S	Used in the FOR...NEXT loops and for number storage
P	Used to see if a key is pressed

Get it right!

10 WDQ (X)
20 QRC (J)
30 J5W (T)
40 VKS (Q)
50 CQ8 (J)

Micro empire that was born in the arcades

Atari's route to success mapped in detail by RICHARD HAWES

THE Atari story begins in California, USA in 1972 – the days when powerful computers filled entire rooms and the most sophisticated video games were text adventures on mainframes. Three friends – Ted Dabney, Larry Bryan and Nolan Bushnell – wanted to develop and market a computerised game that would be commercially viable.

Each decided to put $100 towards the project and then spent some time trying to find a name for their new venture. During a search through a dictionary they came across the word *Syzygy*, meaning the straight line configuration between three celestial bodies. They decided on this.

Soon afterwards Larry Bryan pulled out of the project leaving Dabney and Bushnell to fight on alone. The two started in earnest by opening a shop in Santa Clara, California with capital of $250 each. Shortly afterwards they invented the very first arcade machine called Pong – a tennis-type bat and ball game.

They installed it in local bars and pool halls, and after a while started receiving calls saying that their machines had broken down. On investigation the fault was found to be the machines becoming crammed to overflowing with coins because the game was so popular.

Dabney and Bushnell decided that *Syzygy* was too good a name to give up so they applied for the rights to incorporate a company with that name. Unfortunately, the name had already been taken and the holding company, although not operating, was not willing to lose it. So back to the drawing board.

Atari gets its name

Still looking for inspiration they sat down to play Go, a Japanese board game. They decided to make a list of suitable Go game words to choose one to adopt as a company name. The list went like this: Sente, meaning the upper hand, Atari, the Go equivalent of check in Chess, and Hanne, meaning an acknowledgment of an over-taking move.

The early Atari logo

The list was submitted to the Californian Secretary of State Office and only one was approved – Atari.

Having chosen a new name, they designed a new logo to include the S of Syzygy and the A of Atari. It was not until much later when Atari really started to take off that an advertising agency designed its current logo and trademark which they dubbed the Stylised A design. This design is now more commonly known among Atarians as the Fuji symbol.

All change

By 1974 Atari had released a home version of their arcade hit, Pong. This crude single-game machine was also a hit, and by 1975 Atari's sales had reached $40 million. In 1976 Atari started to find problems with the competition, and Bushnell and Dabney sold the company to Warner Communications, the leisure industry giant, for a mere $28 million. At this stage, Bushnell remained a figure of major influence within the Atari management.

It wasn't until 1977 that Atari produced its first programmable home machine, the 2600 VCS – Video Computer System. At that time the only other machines that could be used on home televisions would only play one or two different games, like Dabney and Bushnell's own Pong. The 2600 was one of the first to allow you to plug in a cartridge and have a totally different game. Sales for the year reached $120 million.

The present Fuji Logo

Due to clever licencing deals and use of Atari's widespread coin-op titles, the VCS – which is now over 10 years old – has now sold between 35 and 40 million units worldwide, more than any other home machine. As a measure of its ahead-of-its-time design, it still maintained sales of a million units last year, 100,000 of them in the UK.

By 1979 through the sales of its computers and games cartridges, Atari became the single largest buyer of rom chips in the world. The VCS also spawned an industry of add-ons and, almost for the first time, third party software houses – an estimated 150 million games cartridges have been sold for the 2600.

Nolan Bushnell left Atari in 1978 as it started losing money again and Ray Kassar was brought in by Warner to head the company. He managed to bring it back into the black.

It was late in 1979 that Atari first showed the 6502-based 400 and 800 home micros. They had a shakey start in the UK but did well in Europe and the States, taking sales to a new all-time high in 1980 of $415 million.

The 8 bit Atari 800 came into the UK at £649 for a 16k model, Basic cost an extra £39 and a 16k memory expansion was £69. (Adding 512k to an ST now costs around £100.) In 1981 Atari became the fastest growing company in the history of America and dominated the video game market with a massive 80 per cent share.

By 1982 17 per cent of American

households owned a video game machine. Atari's sales in the 1982-83 period reached a new peak of $2,000 million. It had by this time sold 15 million 2600 games consoles. It was also at this time that it released the 1200XL in America and subsequently withdrew it again before the middle of 1983. The bubble was about to burst again.

1983 was a very bad year for the old Atari company. The holding company – Warner Communications – lost more than $310 million as other games machine manufacturers such as Colecovision reduced Atari's share of the market to 40 per cent. In March 1983 Atari axed 1,700 employees from its payroll and in June 1983 products such as the 1400XL, the 1400XLD and the CP/M XL expansion were shown but never released.

The war between the home computer companies began to hot up after Commodore's huge success with the Vic 20 and then its release of the C64. In July 1983 Atari president Ray Kassar resigned and in September James J Morgan came from America's tobacco industry to take over. At that stage, only the arcade coin-op machines division was profitable.

By November the home computer war reached a peak and Texas Instruments, among others, was quitting from the home computer field. Atari's staff layoffs now reached 3,000, and it anounced its greatest ever losses of more than $532 million for the 1983 fiscal year. It made desperate attempts to regain a market share by introducing a revamped range of 8 bit machines – the 600XL and the 800XL based on and compatible with the 400 and 800 computers. But Atari continued to lose money.

The new Atari

By the end of January 1984 Jack Tramiel had quit Commodore Business Machines, the company he had started 25 years earlier by buying typewriters, repairing and then reselling them. Many said at the time that he had left over disagreements with Commodore's chairman, Irving Gould.

He disappeared for four months and most assumed he had retired, made rich with Commodore's billion dollar success in the calculator and home computer fields.

By June of 1984 only 1,200 of Atari's 6,000 staff remained and rumours were flying around about a sell-off of the Atari Corporation to Philips, another giant in consumer electronics trying to make an entry into the home computer field. Jack Tramiel had meanwhile set up a company called Tramel Technologies Incorporated.

It was this new company that in July of 1984 popped up and bought Atari Computers – the Atari consumer products division – for a cool $240 million, leaving Warner Communications with the profitable division of Atari coin-op machines.

In November of 1984 Jack Tramiel held a press conference to announce the birth of the new Atari company – and it certainly was new as little of the original staff remained. Behind the slogan of *Power without the price* Jack Tramiel streamlined it to the core – Atari UK went from over 100 staff to less than 20. Even now, a much more successful company still employs around 30 staff in the UK.

Having cut expenditure to the absolute minimum, Jack Tramiel then set about building the new Atari image and product line. He had, in effect, bought a worldwide computer distribution system and was now gearing up to use it to its best effect.

Many of his followers at Commodore came across to help him, confident that Jack would make Atari a prosperous company once more. In addition, he employed two of his sons – already industry-renowned figures in their own fields – in key positions within the new Atari. Sam Tramiel became President of the Atari Corporation and Leonard Tramiel became Vice President in charge of software development.

The new company needed money, so it started life by reducing the prices of the stock it had obtained as the 800XL fell to $119 in the US and £129 in the UK, giving a more competitive edge on the Christmas 1984 computer market.



Jack Tramiel. . .
$240 million takeover

The new product line

In January 1985 Atari launched the first of its new lines. At the CES show in Las Vegas it unveiled six new machines: Three 16 bit computers called STs and three 8 bit machines still based on the XL. All were ready for manufacture after only six months under Tramiel's rule.

Based on the 800XL, the 65XE and the 130XE were the 8 bit machines launched, and a portable XE was announced but never saw the light of day. It was around this time that the 800XL, already becoming much more popular in the UK than the previous 400 and 800, was awarded the Home Micro of the Year award at the British Micro Awards.

In 1986 8 bit owners were treated to a new cassette deck, the XC11 which

Turn to Page 24 ▶



The Atari
130XE computer

◀ From Page 23

colour-matched the XE series. This player replaced the by now aging 1010 recorder which matched the XL series. It was fairly quickly replaced by the XC12, as there seemed to be some problems with supply and reliability.

In March the Atari following was such that for the first time a dedicated user show could be held. Database Exhibitions staged the first Atari User Show at the Novotel in Hammersmith and it was an immediate success.

More high-level changes were taking place in Atari's management during the middle of 1986. Max Bambridge, the then general manager moved to the Far East to cover manufacturing, and Bob Gleadow left Commodore to rejoin his old boss at Atari.

It was speculated that Max Bambridge was being ousted as being unsuccessful at running Atari UK. However, Jack Tramiel said that he felt Max Bambridge had done a lot of work in getting the ST off the ground, and it was now time for a marketing man, Bob Gleadow, to build on that base.

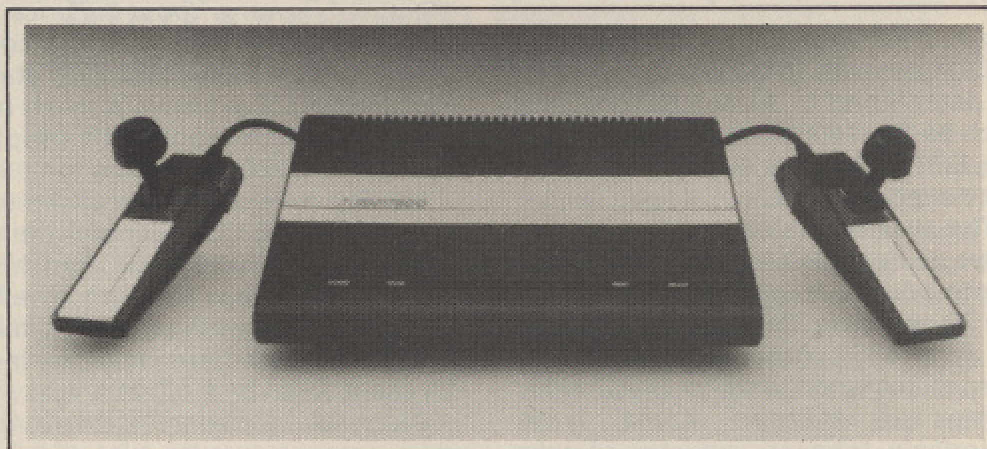
At the end of 1986 Atari tested the waters for a dedicated games machine by announcing the 7800 pro-system. This was subsequently withdrawn and has since only been sold in the US.

The 130XE – 128k micro – and the 65XE – 64k micro – are still available. The 130XE is priced around £139 with a cassette deck and the 65XE is priced at around £100 with a tape deck.

Atari has continued its policy of supporting the 8 bit range. The latest machine to be released is the XE Games Console, similar in idea to the 2600 but controlled by a 6502C CPU like the XL/XE home micros. It comes with 64k of memory and can be upgraded to 128k by adding a keyboard that has 64k built-in.

As such it is an advanced games machine rivalling those from Nintendo and Sega. However, it is much more than a mere games machine – as the in-depth review published in the December 1987 issue of *Atari User* reveals.

Software previously written for XL and XE micros is fully compatible with it, so a wide range of games, educational and business programs are already available.



The Atari 7800 video game machine

Keeping on the right track...

Product: Grand Prix Simulator
Price: £1.99 (cassette)
Supplier: Code Masters, PO Box 200, Banbury, Oxon OX16 7GA.
Tel: 0926 814132

AROUND this time of year, BBC 2 screens a sports program with a very catchy signature tune – written by Fleetwood Mac I believe.

It has to do with a bunch of formula one racing cars spinning around a track at tremendous speeds. And its commentary is by a person who gets over excited very easily. Yes, you guessed it, the Grand Prix season has started.

So it's no coincidence that Code Masters has released its latest offering for the 8 bit Atari – Grand Prix Simulator – at this time.

The game uses an overhead view with up to three cars driving around the 12 different, and very difficult, circuits – very similar in style to Super Sprint on the Atari ST.

Each circuit is cunningly designed to make life as dangerous as possible for you as you drive under bridges and through oil slicks in an attempt to beat the computer, your opponent, or both to the finish.

The digitised speech used throughout the game is of a low standard when you compare it to other games. There again this is a budget title.

You control your red car using a joystick plugged into port one. Pressing fire accelerates it and then all you have to do is steer round the hairpin bends and try to avoid smashing into everything.

Remember that a head-on steering technique is employed, so push left to go right and vice versa.

The game supports simultaneous two player action with the second driver controlling the yellow car via a joystick plugged into port two. The purple car is the computer controlled drone and drives a pretty mean race.

As with the TV series, the game employs a catchy signature tune but, this one isn't written by Fleetwood Mac. All the same, it's quite nice. There is a section on the cassette inlay describing a racing driver called Johnny Dumfries who has played the game and endorsed it. He says it's an exciting and fun simulator to play. All I can say is Johnny who?

The graphics are very good, even though your car looks like a brick on wheels going around a track. The circuits are well depicted with splendid use of colour.

At times the sound effects leave a bit to be desired but you are restricted in what noises you make within a car game – the revving engine and screech of tyres are all that spring to mind.

Grand Prix Simulator is very enjoyable and tremendous fun to play, especially when in two player mode. It's a good laugh to watch your opponent crash into the barriers or get stuck under the bridges and not be able to find his way out.

The only thing I can criticise is the steering – it's just as well your car bounces instead of explodes when it hits a wall or bridge, because that's what I spent most of my time doing. If

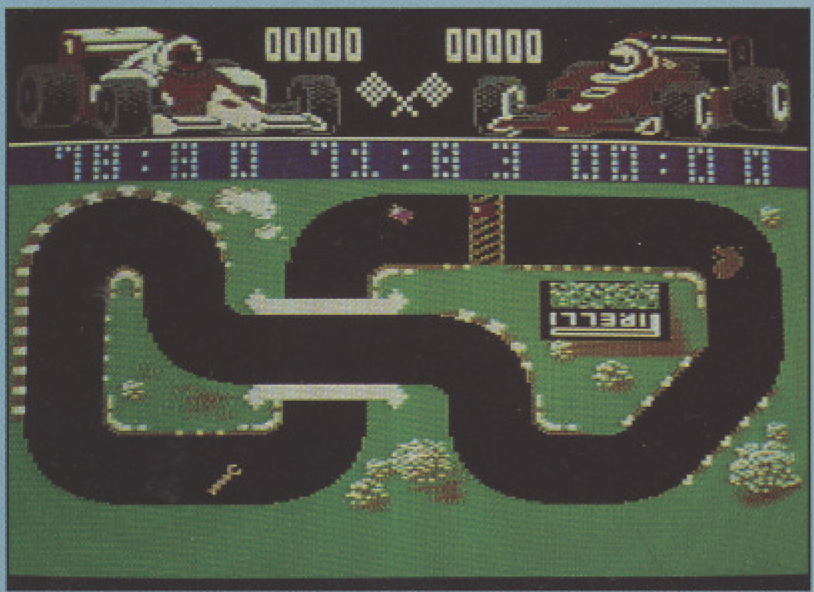


you like car games but are a little bored by the head-on perspective give this one a try .

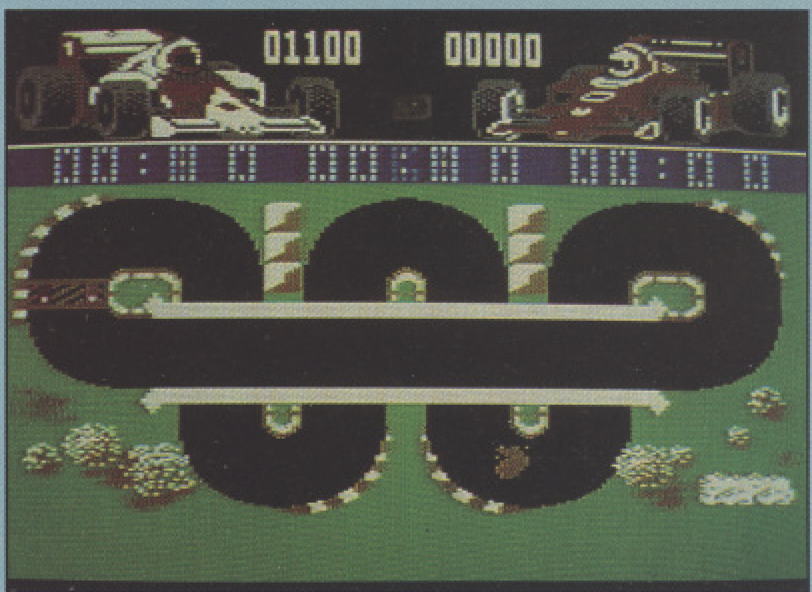
Superb playability and excellent value for money far out weigh the criticisms I can level at it. At £1.99 you can't go wrong.

Keith Pattison

Sound	6
Graphics	7
Playability	7
Value for money	9
Overall	7



Be quick off the mark on track one



Beware of oil slicks

Boulderdash is back

Product: Rockford: The Arcade Game
Price: £2.99 (cassette)
Supplier: Mastertronic (MAD), 5-10 Paul Street, London EC2A 4JH.
Tel: 01-377 6880

OVER the years several games have created a cult following among Atari game players. However, none have had the same lasting effect as Boulderdash.

Is this because it has an addictive quality that everyone loves, or could it be that the hero – Rockford – is the cutest little rockmite you have ever seen?

Now MAD Software has released Rockford: The Arcade Game. It's a conversion of Arcadia Systems' classic coin-op game and the cassette inlay tells you that you have just bought the greatest piece of game software ever released. Read on to find out.

The game is set on five worlds Rockford has to explore. On each he takes a different identity in his bid to collect items of treasure. His guises are cowboy, hunter, spaceman, doctor and chef – I wonder if he bakes rock cakes?

The various treasures are the Pharaoh's gold masks, apples of eternal youth, Indian pennies, suns and hearts. To collect one all he has to do is walk over it.

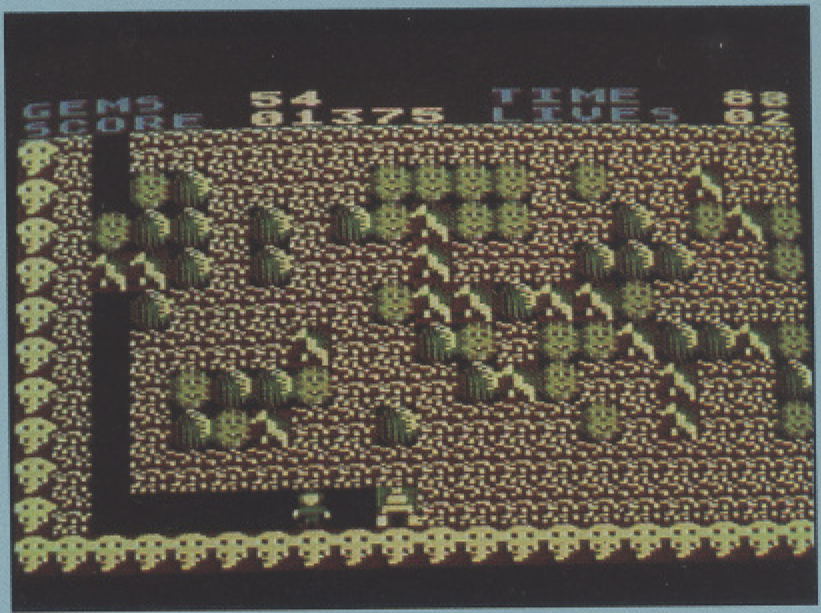
Each world has four levels and each level has four screens. According to my maths that makes 80 screens in all – plenty to keep you busy.

Wandering around collecting the treasures sounds very easy, but in Rockford's world life is rarely this simple. You must avoid falling rocks that tumble down as you eat the earth or move a treasure from beneath them.

Deadly monsters inhabit these strange subterranean labyrinths. Some move in pre-set patterns, simply there to make your life difficult while others will chase you.

Yet another type explode when killed, creating treasures as they fade. You may have to do this in order to finish some levels.

Once the required number of items have been retrieved from a set of caves, a door – which looks like a beehive – will appear for you to go through.



Explore level one with Rockford

Some of the rooms have fiendish traps and puzzles to work out. For example, some are known as Torch Rooms but these only occur on the night-time level. In them you carry a torch that only allows you to see segments of a room.

Some have a fire that you have to put out. To accomplish this you must find a tap and turn it on, then push the water to the fire.

Of all the puzzles and devious traps I encountered, the most annoying were the walls that grow. If you remove a boulder or treasure in the wrong order the wall will follow you, making it very easy to pen yourself in.

Although the graphics are not as good as the original game – and remember no other computer format has been able to emulate the quality of the old Atari version – it does have that certain classic touch to it.

Rockford is still animated in his old way – if you stand around too long doing nothing he starts to get a little nervous and begins to twitch and shuffle around.

The sound effects are lacking when compared to the original but, they are superior to other games currently on the market and they do add atmosphere.

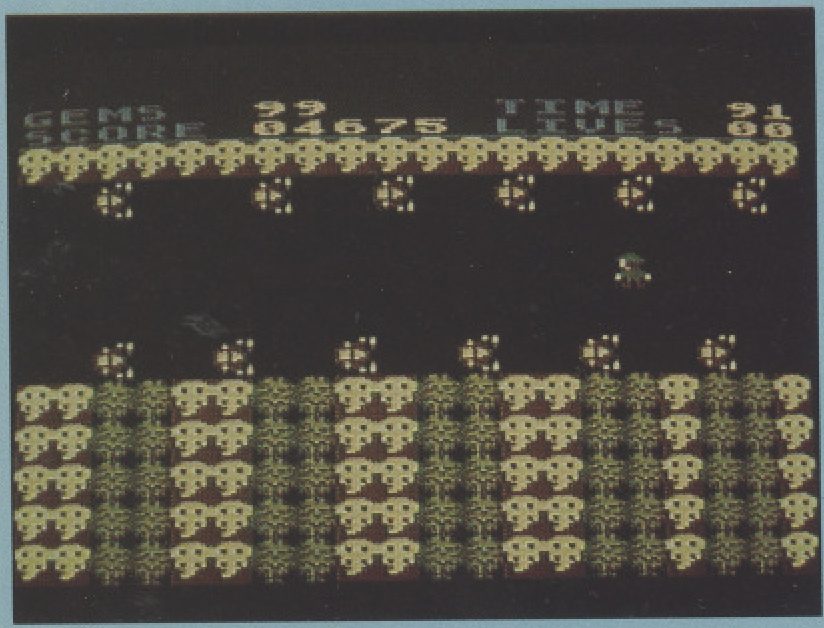
It's nice to see Rockford back on my TV screen again, even if it is in such unusual surroundings.

Compared with the original version, the on-screen action seemed a little slower and there was a tinge of a delay in joystick response – but I could be comparing it to the old version too much.

If you are a fanatic of the Boulderdash game and love to see that cute little rock termite fly around the screen, then invest in this game – at £2.99 it's an absolute bargain.

And if you get bored with it you will find a free copy of Crystal Raider on the B side.

Keith Pattison



Beware the skulls on level three

Sound	***7***
Graphics	***8***
Playability	***8***
Value for money	***10***
Overall	***8***

Compilation bonanza...

Product: Atari Compilation
Price: £4.95 (cassette)
Supplier: Atari Corp (UK), Atari House, Railway Terrace, Slough, Berkshire SL2 5BZ.
Tel: 0753 33344

IN the early days Atari produced several great games and now it has re-released five of them on a compilation tape – Typo Attack, Missile Command, Centipede, Realsports Tennis and Star Raiders.

In **Typo Attack** you defend eight missile bases from attack by aliens, each marked with its own keyboard character. Every time you press the relevant key an energy bolt from the base will destroy the marauding alien hell-bent on your destruction.

Basically, the game is a simple keyboard tutor that has a graphical representation of each key so as to relieve the toil of finding your way around a querty keyboard.

Each successive wave gets faster and you need to be quick off the mark to hit the correct key before the alien gets you.

Admittedly this isn't the best game ever written for a home micro, but it is great fun for the kids and very useful if you just want to brush up on the old keyboard bashing.

Missile Command puts you in charge of a missile silo as you defend seven cities against attack from incoming ICBMs (Intercontinental Ballistic Missiles) and MIRVs (Multiple-Warhead ICBMs) which drop killer satellites and enemy bombers.

The attacks come in waves and last from 30 to 45 seconds each. As the enemy projectiles descend, just move your targeting sight and press the fire button. This will launch one of your ABMs – Anti-ballistic Missiles – that will hopefully destroy the enemy weapons homing in on your cities.

When a wave is over, your remaining cities and missiles are used to calculate a bonus, and this is displayed with your current score.

When you are about to run out of missiles your target sight will change shape. At this point make your missiles count – don't waste them or you could end up with no cities at all.

The graphics are very simple as are the sound effects, but overall the game is a classic and great fun to play.

In **Centipede** you live in an enchanted mushroom patch also inhabited by bothersome bugs which possess magical powers. Your job as Bug Blaster is to destroy all the creepy crawlies before they get you.

The largest of the nasties in the garden is the centipede – hence the name – that marches down the screen in a military manner. If it bumps into a mushroom it changes direction and travels at an even greater speed. To destroy it you must blast each of its segments.

Other nasties to watch out for are the jumping spiders, the frenzied flea that leaves a trail of mushrooms after it and the scurrying scorpion which is deadly if it touches you.

This is another conversion of an Atari arcade game that had a cult following years ago. I remember putting pounds into one of these machines in my younger days.

The first time I played the home micro version I had just bought it on rom cartridge and it was as much pleasure to play then as it is now and at about a thirtieth of the price.



Missile command

Centipede is a state of the art game and very addictive – worth the compilation price on its own.

Your view of **Realsports Tennis** is from above at a shallow angle, giving an illusion of depth to the game. Added to this, the ball's shadow makes everything seem very realistic.

I still class this as the best tennis simulation I have seen on an 8 bit machine. The graphics, animation and sound effects are well put together. As with Centipede, it's well worth the price of the package on its own.



Game, set and match

The final game on the tape is **Star Raiders** a legend among Atari owners worldwide.

You are at war with the evil Zylon empire which is attempting to take over your Galaxy and as a Starfleet pilot you must do battle with it as you zoom around in your twin ion-engined star fighter.

As the game progresses you must stop your star bases being surrounded and eventually destroyed. When the warning buzzer sounds you bring the galactic chart on to your screen – press G – and hyperwarp to the relative sector and destroy the enemy vessels.

If you sustain a lot of damage, hyperwarp to a star base that isn't under attack and dock with it. A repair drone will leave the station, repair all damage, and refuel your fighter.

If you ever wanted to be Buck Rogers or Luke Skywalker this is your chance. Another game well worth the price of the compilation on its own.

Many years ago these games would have cost you more than £100. Now you can get them for just £4.95. What a bargain.

Chris Jones

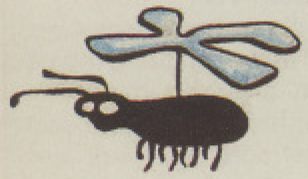
Sound	***6***
Graphics	***7***
Playability	***8***
Value for money	***10***
Overall	***8***

Figures are an average taken for all the games

THE EIDOLON

MONSTERS by BRYAN STEVENS

LAST month we gave you a map showing the levels to the superb graphical adventure game from Activision.
Now we introduce you to the strange and demonic creatures that inhabit this subterranean labyrinth.



ROTOFLY

Level: 1, 2, 3, 4, , 6, and 7
Disposition: Easy meat
How to kill it: One red fireball will despatch this one.



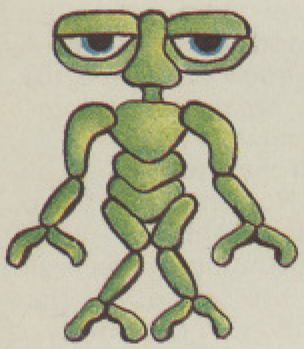
BITER BIRD

Level: 1, 2, 3, 4, 5 and 7
Disposition: Easy
How to kill it: Three red fireballs do the trick.



TROLL

Level: 1, 3 and 6
Disposition: Easy
How to kill it: Three red fireballs will kill the first one but more are needed on higher levels.



GREP

Level: 2
Disposition: Easy
How to kill it: This creature will be pushing up the daisies if you hit it with three red fireballs.



BOTTLENECK

Level: 3
Disposition: Moderate
How to kill it: Turn this one into a stiff with three red fireballs.



PUFFER BIRD

Level: 4 and 5
Disposition: Moderate
How to kill it: This creature can deplete your energy rapidly. So despatch it quickly with three red fireballs.



MUNCHER

Level: 4 and 6
Disposition: Dangerous
How to kill it: This monster will chase you, so move backwards as you are shooting it. Kill it with nine red fireballs.



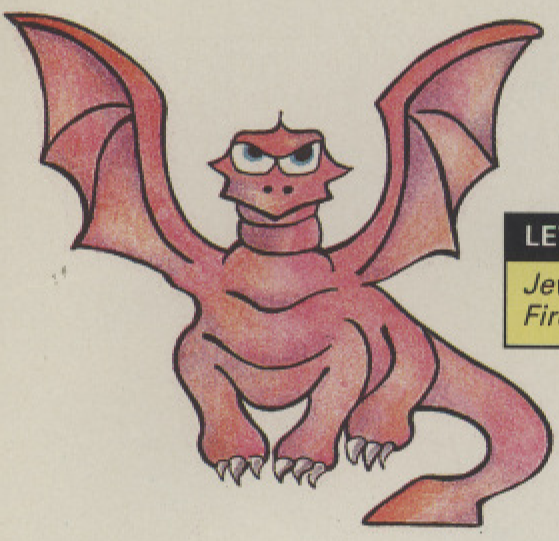
SINGING MUSHROOMS

Level: 5
Disposition: Moderate
How to kill them: When you approach them they will come to life and sing you a tune. Hit each one of the group with a green fireball. The last one will then change into another creature. Kill it with a red fireball.



*?@:? (unrepeatable!)

Level: 7
Disposition: Extremely dangerous
How to kill it: Ensure that your energy is at full before attempting to get this one. Awaken the beast with a blue fireball. This freezes it temporarily and gives you a chance to let of a volley of red fireballs. If your energy gets too low, run away! Collect more fireballs and go back for another go. It takes about 15 red fireballs to dispatch it.



LEVEL 1 DRAGON

Jewel: Red
Fireball: Red



LEVEL 3 DRAGON

Jewel: Blue
Fireball: 5 Green



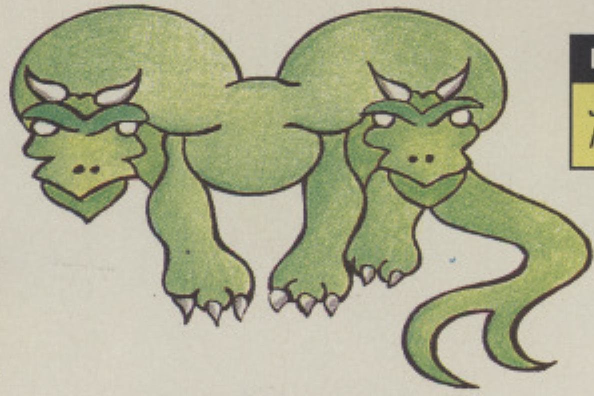
LEVEL 5 DRAGON

Jewel: Green and blue
Fireball: 7 Yellow



LEVEL 2 DRAGON

Jewel: Green
Fireball: 4 Yellow



LEVEL 4 DRAGON

Jewel: Red and green
Fireball: 6 Blue



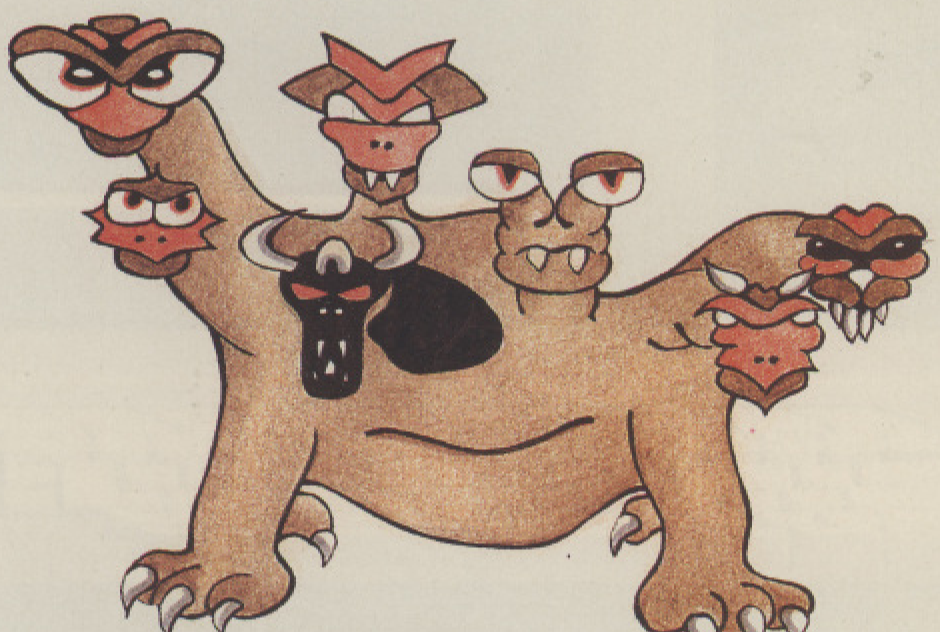
LEVEL 6 DRAGON

Jewel: Red and blue
Fireball: 8 Blue



LEVEL 7 DRAGON

Jewel: Red, green and blue
Fireball: 9 Red



LEVEL 8 DRAGON

To kill it you have to shoot it with the same colour and same number of fireballs as used in the previous seven levels – and in the same order. Start off with three red, four yellow, five green, six blue, seven yellow, eight blue and finally nine red.

To make sure the Atari 520 STFM only plays games that are worthy of it,



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This Toolkit is a MUST!

Programming becomes so much easier when you've got the right tools for the job. With this *Atari User* package you can add TEN new commands to Atari Basic to dramatically improve your performance. *PLUS* your Atari will generate meaningful error messages instead of cryptic numbers.

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CLICK Turns that sometimes annoying keyboard click on or off simply.

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CHANGE Alters the name of a variable at every occurrence in a program

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LISTING Prints and includes the Atari special characters on an Epson printer.

£5.95 tape
£7.95 disc

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Your HINTS & TIPS

WE welcome letters from readers giving their help with games on the Atari that they would like to pass on to other readers. The address to write to is:

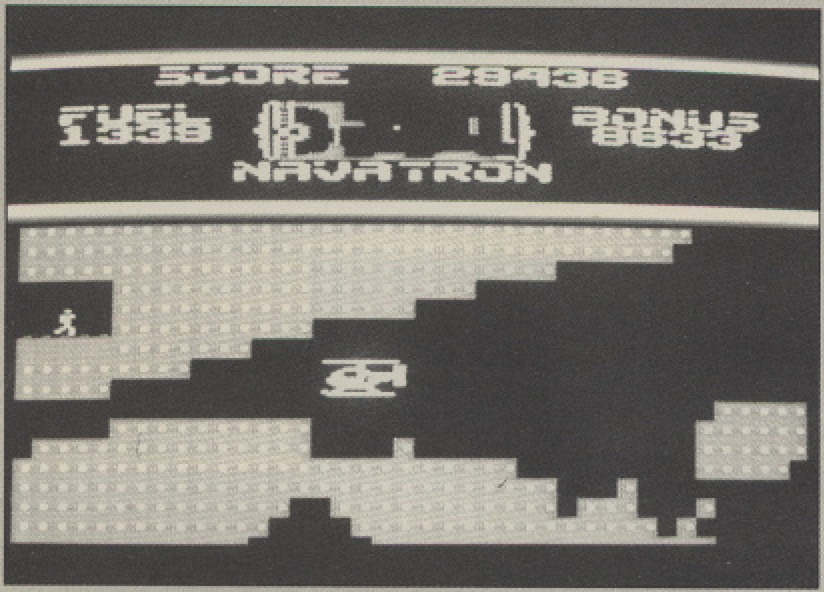
Hints and Tips
Atari User
Europa House
Adlington Park
Adlington
Macclesfield SK10 4NP

Fort Apocalypse

THIS helicopter shoot-'em-up appeared on the market many years ago and is still the best of its kind. For those of you who are having trouble with it here are some very useful tips:

- Attack the missile carriers only when they are moving away from you – they're easy meat.
- When engaging enemy helicopters attack them from above. You can drop bombs on them but they can't fire upwards.
- If you shoot the moving blocks you will reverse their direction.
- Keep an eye on the Navatron scanner at the top of the screen. It will indicate when a rogue helicopter is heading your way.
- Try not to shoot off the screen. You may kill one of the men you are attempting to rescue.
- If you get killed you start at the last landing pad. So, land on the pads – usually flat white surfaces – as often as possible. Especially in the lower levels where it gets a bit hairy.

Bryan Stevens, Andover, Hants.



Helicopter capers in Fort Apocalypse

Alternate Reality: The Dungeon

IN the March 1988 issue of *Atari User* we gave you some tips for this excellent adventure game. Also included was an incomplete list of quests. The following shows the ones you can undertake:

QUEST ONE
To free the prisoner under the palace you require a silver key. This can be obtained by defeating a Master Thief. Once freed, the prisoner will teleport you to the Riddle of the Three Doors. Beyond that, follow the passage to Acrinimiral's tomb and give him the staff piece that the prisoner will give you. This will complete the first quest.

QUEST TWO
To complete this one you must kill the goblin and troll kings. Then take the two ring halves to the dwarven smithy who will reforge the ring. Next, simply take it back to the Oracle.

QUEST THREE
Take Morgana's tiara to the clothes horse who will exchange it for a mirrored shield.

QUEST FOUR
To cross the river Stonz wait until a few minutes after midnight, then enter the River Station and offer the boatman five copper pieces. He will take you across.

Once in the realm of the undead you must go to the palace of the undead king. Before you get there you must defeat six undead knights to improve your stats. The undead king will give you a staff piece for Acrinimiral.

QUEST FIVE
This is the Great Dragon's quest – he wants the bloodstone. First go to the gargoyle and answer the three riddles. He will teleport you to the basilisk. You must fight it with your bare hands as weapons don't affect it. Once you have defeated it you can take the bloodstone and return to the dragon who will give you a staff piece.

QUEST SIX
When you have taken all the staff pieces back to Acrinimiral he will give you the Portal Access Card (PAC). Go to the Gauntlet and get through to death's door. Use the PAC and walk through. You will be teleported to level four.

Use the mirrored shield as a secondary weapon and follow the metallic corridor round. You will come to the alien control room. Go in and an alien will then shoot at you with a laser.

The blast will reflect off the mirrored shield and destroy the control room. You will then go out the other side of the room. Walk forwards and you will find two doors. One takes you back to the elevator and the other is the Gateway to Revelation.

Neil Loughborough, Cleveland

Spy Hunter

IF your car is forced into the water wait until you pass either the bridge or the rest of the land and pull hard right away from the island and get as close to the bank as possible. You can then get back on to the land as fast as possible with no problems.

Once you have collected the SAM missile don't hit any of the civilian cars or your spy car will blow up.

The smoke screen is the only useful weapon to use: The oil slick is pretty useless as it leaves a straight broken trail that can be easily dodged.

The helicopter won't always attack so don't instantly shoot it and waste a missile.

Andrew Patterson, Basingstoke.

ATARI USER MAIL ORDER OFFERS

Two discs crammed with the most popular programs from your favourite magazine!

These two exciting compilations bring together some of the very best listings from the pages of *Atari User*.

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DiscError – Make sense of those Basic error numbers by turning them into words
DiscEdit – Modify those hidden sectors with this superb utility
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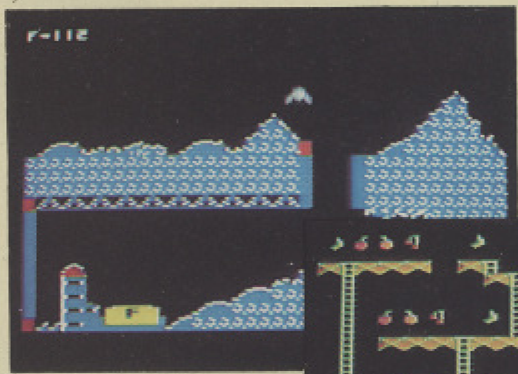
PLUS the latest Get It Right! program to help you correctly type in listings in Atari User.

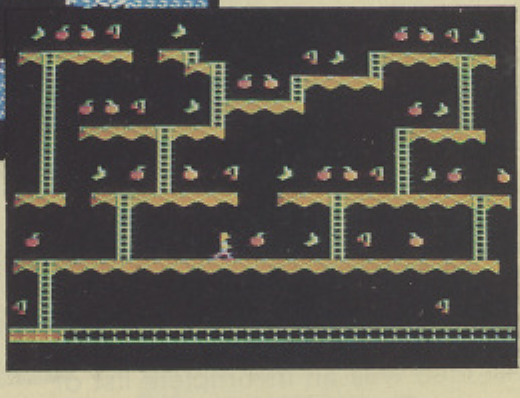
Ten of the Best Games

Chopper Rescue – Take command of a helicopter to rescue lost soldiers
Des Bells – Rescue Esmerelda by negotiating the dangerous obstacles
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Mazemunch – Guide your munch monster around the maze, avoiding its deadly inhabitants
Moneybags – Gobble up all the money but beware of the sinister spiders
Frank the Fruit Fiend – Help Frank eat his favourite food in this platform game
Duck Dash – Dash round and chase up all the ducks before the storm hits the farm
Frogjump – Direct the frog across the busy road in this classic arcade game
Doctor Boris – Help the doctor build the new hospital, but watch out for mad Norman

PLUS the latest Get It Right! program to help you correctly type in listings in Atari User.

Vol. 1 (For details of the new Vol. 2 see page 52)


Frank the Fruit Fiend


Spacemaze

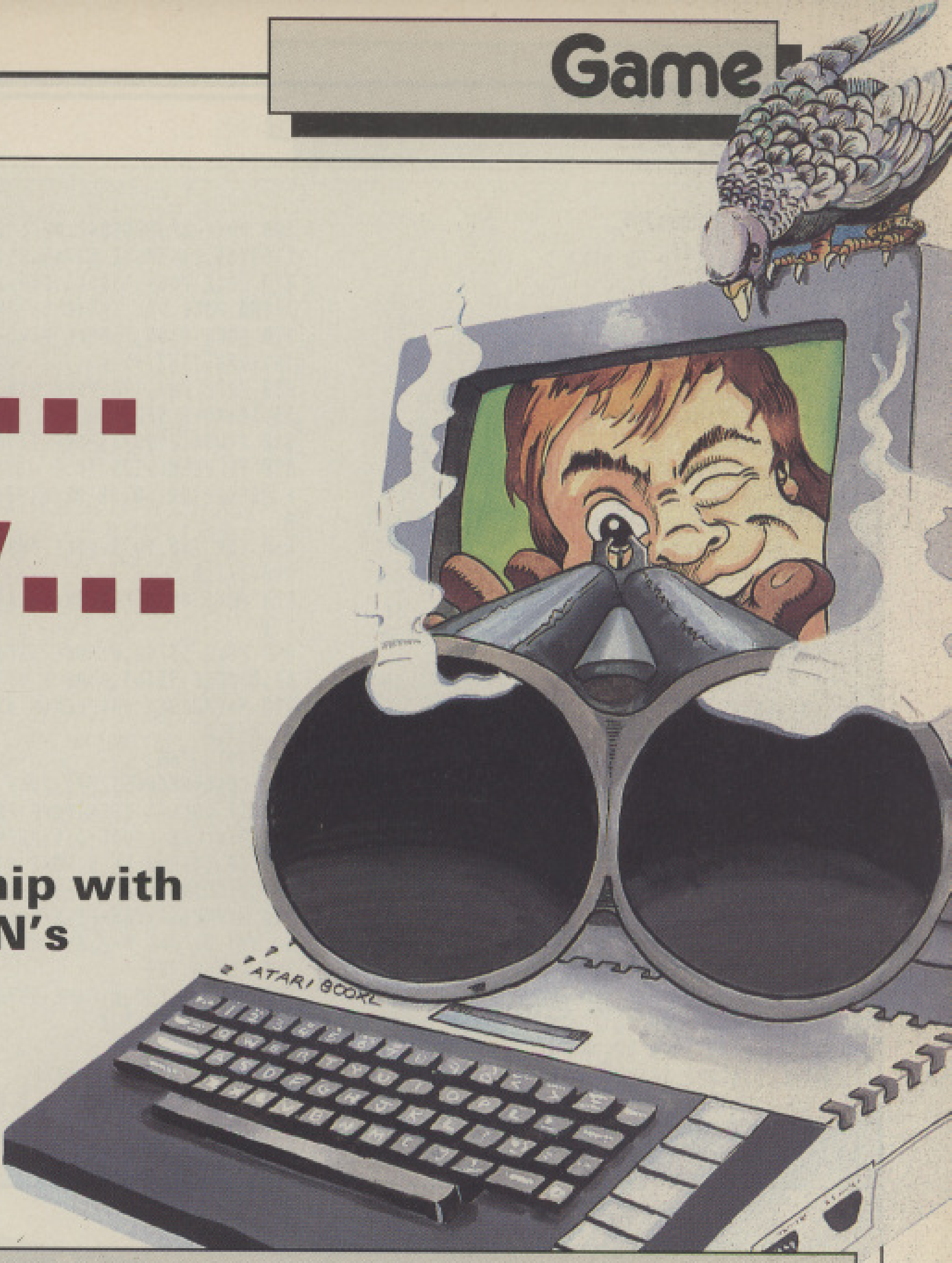
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AT11/87



Ready... steady... PULL!

Test your marksmanship with STEPHEN WILLIAMSON's fast-action game

THIS game simulates the sport of clay pigeon shooting where you use a shotgun to try and shoot down clay discs, or pigeons as they are known.

After typing in the program save it to disc or tape before running it. A mistake in the data statements could result in your Atari crashing and you losing your work.

When the program has been initialised it will display a menu of options which affect the gameplay. The clay pigeons can be small or large and played at a slow, medium or fast pace.

The number of pulls – 10, 20, 30 or 40 – affects how many sets of pigeons are launched. You can even choose the weather conditions – fine or cloudy.

An arrow points to each option and a joystick is used to move it up or down. Pressing the fire button selects the particular option you require.

When Start is pressed the message PULL WHEN READY appears at the top of the screen. If you move the joystick backwards, two clays will be launched or *pulled* into the air.

Your shotgun only fires one barrel at a time with the second one firing when a pigeon has been hit or the bullet has left the screen.

Your score depends on how high the pigeon is when hit – the nearer the top of the screen, the lower the score. To hit one requires fast reactions and a good eye.

The figure at the top right of the screen shows the number of pulls remaining. When it reaches zero the game is over and you will be returned to the main menu.

```
10 REM CLAY PIGEON SHOOT
20 REM BY STEPHEN WILLIAMSON
30 REM (c)ATARI USER
40 GRAPHICS 0
50 POKE 752,1
60 FOR I=0 TO 59:READ A:POKE 1536+I,A:
NEXT I
70 FOR I=0 TO 13:READ A:POKE 1700+I,A:
NEXT I:A=USR(1569)
80 GOSUB 1020:SETCOLOR 2,1,12:SETCOLOR
 1,0,2
90 DIM SIZE$(39),SPEED$(39)
100 DIM WEATHER$(39),NUM$(39),PULL$(39
)
110 SIZE$="":SPEED$="":WEATHER$=""
120 SIZE$="SIZE OF CLAY PIGEONS    ":R
EM 4 SPACES
130 SPEED$="SPEED                  ":R
EM 18 SPACES
140 WEATHER$="WEATHER               "
:REM 15 SPACES
150 NUM$="NUMBER OF PULLS        ":REM
 8 SPACES
160 SIZE=1:SPEED=3:WEATHER=1:NUM=1:PUL
L=1
170 POSITION 12,0:? "CLAY PIGEON SHOOT
"

180 POSITION 2,9:? "This is going to t
ake a while"
190 POSITION 2,5:? "By Stephen William
son"
200 POSITION 2,7:? "INITIALISING... HA
NG ON..."
210 RESTORE 1500:FOR I=0 TO 570:READ A
:POKE 29997+I,A:NEXT I
220 GOSUB 1870
230 POSITION 2,11:? "NOT LONG NOW..."
240 REM DISPLAY MENU & CHANGE PARAMETE
RS
250 GOSUB 1270:Y=5
260 NUM=1
270 GOSUB 380:GOSUB 330
280 POSITION 0,2:? "
                   ":REM 31 SPACES
290 GOSUB 990:GOSUB 510
300 IF PEEK(53279)=7 THEN 290
310 GOSUB 700:? CHR$(125):GOSUB 1020:G
OTO 260:GOSUB 990
320 REM DISPLAY OPTIONS
330 POSITION 2,5:? SIZE$
340 POSITION 2,7:? SPEED$
350 POSITION 2,9:? WEATHER$
360 POSITION 2,11:? NUM$
370 POSITION 1,Y:? ">"
380 IF SIZE=1 THEN SIZE$(24)="SMALL":P
OKE 53256,0:POKE 53257,0
390 IF SIZE=2 THEN SIZE$(24)="LARGE":P
OKE 53256,1:POKE 53257,1
400 IF SPEED=3 THEN SPEED$(24)="SLOW
"

410 IF SPEED=2 THEN SPEED$(24)="MEDIUM
"

420 IF SPEED=1 THEN SPEED$(24)="FAST
"

430 IF WEATHER=1 THEN WEATHER$(24)="FI
NE  "
440 IF WEATHER=2 THEN WEATHER$(24)="CL
OUDY"
450 IF NUM=1 THEN NUM$(24)="10     ":R
EM 5 SPACES
460 IF NUM=2 THEN NUM$(24)="20     "
470 IF NUM=3 THEN NUM$(24)="30     "
480 IF NUM=4 THEN NUM$(24)="40     "
490 RETURN
500 REM MOVE POINTER
510 S=STICK(0):F=STRIG(0)
520 IF F=0 THEN GOSUB 630
530 IF S=15 THEN RETURN
```

Turn to Page 36 ▶

◀ *From Page 35*

```
540 FOR D=1 TO 50:NEXT D
550 POSITION 1,Y:? " "
560 IF S=14 THEN Y=Y-2
570 IF S=13 THEN Y=Y+2
580 IF Y<5 THEN Y=5
590 IF Y>11 THEN Y=11
600 POSITION 1,Y:? █
610 RETURN
620 REM CHANGE PARAMETERS
630 FOR D=1 TO 20:NEXT D
640 IF Y=7 THEN SPEED=SPEED+1:IF SPEED
=4 THEN SPEED=1
650 IF Y=5 THEN SIZE=SIZE+1:IF SIZE=3
THEN SIZE=1
660 IF Y=9 THEN WEATHER=WEATHER+1:IF W
EATHER=3 THEN WEATHER=1
670 IF Y=11 THEN NUM=NUM+1:IF NUM=5 TH
EN NUM=1
680 GOSUB 380:GOSUB 330:RETURN
690 REM CHANGE DISPLAY LIST TO GR.1
700 ? CHR$(125):POKE 1558,26:FOR I=DLI
ST+6 TO DLIST+28:IF PEEK(I)=2 THEN POK
E I,6
710 IF PEEK(I)=130 THEN POKE I,134
720 NEXT I:POKE 1558,26
730 GOSUB 1120
740 REM MAIN LOOP
750 GOSUB 1120:NUM=NUM*10:SCORE=0:GOSU
B 990
760 NUM=NUM-1:POSITION 35,0:? NUM;" "
;:IF NUM=0 THEN RETURN
770 POSITION 13,0:? "PULL WHEN READY"
780 IF STICK(0)<>13 THEN 780
790 POKE 53768,0:POSITION 13,0:? "
              ";:REM 15 SPACES
800 POKE SP,SPEED*7:POKE 53761,234:POK
E 53763,234:POKE 53765,234
810 POKE P0ON,1:POKE P0H,INT(RND(1)*30
)+100:POKE P0D,INT(RND(1)*2)+1
820 POKE P1ON,1:POKE P1H,200:POKE P1D,
INT(RND(1)*2)+1
830 POKE P0V,196:POKE P1V,192:POKE 532
53,10:POKE 53278,0
840 A=USR(29997):POKE 77,0
850 IF PEEK(53257)<>0 THEN GOSUB 910:I
F PEEK(P1ON)>0 OR PEEK(P0ON)>0 THEN 84
0
860 FOR I=0 TO 5:POKE PMBASE+1024+PEEK
(P0V)+I,0
870 POKE PMBASE+1280+PEEK(P1H)+I,0:NEX
T I
880 POKE 53760,0:POKE 53761,0:POKE 537
62,0:POKE 53763,0:POKE 53253,0
890 M=PMBASE+768+PEEK(M1V):POKE M,0:PO
KE M+1,0
900 GOTO 760
910 COLL=PEEK(53257):POKE 53278,0
920 IF COLL=1 THEN POKE P0ON,0:POKE 53
248,0:SCORE=SCORE+255-PEEK(P0V)
930 IF COLL=2 THEN POKE P1ON,0:POKE 53
249,0:SCORE=SCORE+255-PEEK(P1V)
940 M=PMBASE+768+PEEK(M1V):POKE M,0:PO
KE M+1,0:POKE M+2,0:POKE M-1,0
950 GOSUB 990
960 POKE 53760,0:POKE 53761,0:POKE 537
62,0:POKE 53763,0
970 RETURN
980 REM DISPLAY SCORE
990 POKE 87,0:POSITION 0,0:? "SCORE ";
SCORE;"     "
1000 RETURN
1020 DLIST=PEEK(560)+256*PEEK(561):POK
E 756,224
1030 POKE 1558,24:FOR I=DLIST+6 TO DLI
ST+28:IF PEEK(I)=6 THEN POKE I,2
1040 IF PEEK(I)=134 THEN POKE I,130
1050 NEXT I
1060 REM SET DISPLAY LIST TO GR.1
1070 FOR I=DLIST+6 TO DLIST+24 STEP 2:
POKE I,130:NEXT I
1080 POKE DLIST+3,194
1090 POKE 1699,0:POKE 512,0:POKE 513,6
:POKE 54286,192:POKE 1699,0
1100 RETURN
1110 REM PRINT GRASS
1120 SM=PEEK(88)+256*PEEK(89)
1130 POKE 756,136:FOR I=440 TO 459:POK
E SM+I,58:POKE SM+I+20,56:NEXT I
1140 IF WEATHER=2 THEN GOSUB 1180
1150 POKE 87,0:GOSUB 990
1160 RETURN
1170 REM PRINT CLOUDS
1180 POKE 711,14:I=150:GOSUB 1240:I=65
:GOSUB 1240
1190 I=113:GOSUB 1240:I=167:GOSUB 1240
:I=91:GOSUB 1240
1200 I=81:GOSUB 1240:I=103:GOSUB 1240:
I=137:GOSUB 1240
1210 I=182:GOSUB 1240:I=196:GOSUB 1240
1220 I=207:GOSUB 1240:I=212:GOSUB 1240
1230 I=241:GOSUB 1240:I=244:GOSUB 1240
:I=266:GOSUB 1240:I=310:GOSUB 1240
1240 POKE SM+I,49+192:POKE SM+I+1,54+1
92:POKE SM+20+I,42+192:POKE SM+21+I,43
+192
1250 RETURN
1260 REM INITIAISE PLAYER MISSILE SYST
```

```
EM
1270 PMB=144:POKE 54279,PMB
1280 PMBASE=PMB*256
1290 POKE 53768,0:POKE 53775,3
1300 FOR I=768 TO 2048:POKE PMBASE+I,0
:NEXT I
1310 POKE 53277,3:POKE 623,20:POKE 559
,62
1320 P0H=1720:P0V=1721:P0D=1722:P0ON=1
723
1330 P1V=1724:P1H=1725:P1D=1726:P1ON=1
727
1340 POKE 1734,0:POKE 1738,0
1350 SP=1743
1360 RESTORE 1810:FOR I=0 TO 4:READ A:
POKE PMBASE+I,A:NEXT I
1370 FOR I=0 TO 11:READ A:POKE PMBASE+
I+6,A:NEXT I
1380 FOR I=0 TO 11:READ A:POKE PMBASE+
I+18,A:NEXT I
1390 FOR I=0 TO 11:READ A:POKE PMBASE+
I+30,A:NEXT I
1400 FOR I=0 TO 15:READ A:POKE PMBASE+
1536+I+190,A:NEXT I:POKE 53250,120
1410 POKE 704,28:POKE 705,42:POKE 706,
58:POKE 711,10:POKE 707,14
1420 POKE 53251,120
1430 RETURN
1440 REM DLI ML ROUTINES
1450 DATA 72,138,72,152,72,174,163,6,2
24,10,240,15,174,163,6,189,164,6,141,1
0
1460 DATA 212,141,24,208,238,163,6,104
,168,104,170,104,64,104,169,6,160,44,1
62,6
1470 DATA 76,92,228,96,173,163,6,201,1
0,208,5,169,0,141,163,6,76,95,228
1480 REM COLOURDATA
1490 DATA 162,160,158,156,154,152,150,
148,148,178,178,180.180,180
1500 DATA 104,32,165,118,173,9,208,201
,0,240,1,96,173,187,6,201,0,208,8,173,
191,6,201
1510 REM ML ANIMATION ROUTINE
1520 DATA 0,208,1,96,32,0,119,173,187,
6,201,1,208,45,173,184,6,141,0,208
1530 DATA 172,185,6,140,0,210,162,0,18
9,0,144,153,0,148,200,232,224,5,208,24
4
1540 DATA 201,2,208,9,238,184,6,206,18
5,6,76,127,117,206,185,6,206,184,6,173
1550 DATA 191,6,201,1,208,48,173,188,6
,141,1,208,172,189,6,162,0,140,2,210
1560 DATA 189,0,144,153,0,149,200,232,
224,5,208,244,173,190,6,201,2,208,9,23
8
1570 DATA 188,6,206,189,6,76,182,117,2
06,189,6,206,188,6,234,206,192,6,32,13
1580 DATA 119,173,208,6,201,1,208,18,1
62,0,169,121,141,3,208,189,6,144,157,1
90
1590 DATA 151,232,224,12,208,245,173,2
08,6,201,2,208,18,162,0,169,120,141,3,
208
1600 DATA 189,18,144,157,190,151,232,2
24,12,208,245,173,208,6,201,3,208,18,1
62,0
1610 DATA 169,115,141,3,208,189,30,144
,157,190,151,232,224,12,208,245,173,12
0,2,201
1620 DATA 15,208,5,169,2,141,208,6,201
,7,208,5,169,3,141,208,6,201,11,208
1630 DATA 5,169,1,141,208,6,238,12,119
,173,12,119,201,4,240,9,32,165,118,32
1640 DATA 165,118,76,49,117,169,0,141,
12,119,141,0,210,141,2,210,141,4,210,1
73
1650 DATA 132,2,201,1,208,3,76,161,118
,173,202,6,201,1,240,73,169,1,141,202
1660 DATA 6,169,185,141,6,210,141,201,
6,169,138,141,7,210,169,138,169,250,16
9,121
1670 DATA 141,200,6,173,208,6,141,203,
6,201,1,208,10,169,124,141,200,6,169,1
90
1680 DATA 141,201,6,173,208,6,201,3,20
8,18,169,119,141,200,6,169,193,141,201
,6
1690 DATA 141,6,210,169,138,141,7,210,
234,76,49,117,234,173,202,6,201,1,208,
82
1700 DATA 169,0,174,201,6,157,0,147,20
2,224,160,208,8,169,0,141,7,210,141,6
1710 DATA 210,224,0,208,8,169,0,141,20
2,6,141,7,210,142,201,6,169,8,157,0
1720 DATA 147,157,255,146,173,203,6,20
1,3,208,3,206,200,6,201,1,208,3,238,20
0
1730 DATA 6,173,200,6,201,0,208,11,169
,0,141,202,6,157,0,147,157,255,146,141
1740 DATA 5,208,234,96,160,150,174,207
,6,202,208,253,136,208,247,96,0,173,18
5,6
1750 DATA 201,10,208,3,32,54,119,173,1
84,6,201,10,208,3,32,54,119,173,189,6
1760 DATA 201,10,208,3,32,79,119,173,1
88,6,201,10,208,3,32,79,119,96,169,0
1770 DATA 141,187,6,162,0,172,185,6,15
3,0,148,232,224,5,208,248,141,0,210,14
1
1780 DATA 1,210,96,169,0,141,191,6,162
,0,172,189,6,153,0,149,232,224,5,208
1790 DATA 248,141,2,210,141,3,210,96
1800 REM PLAYER SHAPES
1810 DATA 0,56,124,56,0
1820 DATA 0,16,48,32,96,64,192,128,0,0
,0,0
1830 DATA 0,64,64,64,64,64,64,64,64,64
,0,0
1840 DATA 0,8,12,4,6,2,3,3,1,0,0,0,0,0
1850 DATA 28,62,62,28,28,62,127,127
1860 DATA 62,62,62,62,62,54,54,54
1870 REM LOAD CHARACTER SET
1880 DIM ML$(40)
1890 M=PEEK(106)-24
1900 CHBASE=256*(M)
1910 RESTORE 1940:FOR L=1 TO 36:READ A
1920 ML$(L,L)=CHR$(A):NEXT L
1930 A=USR(ADR(ML$),M)
1940 DATA 104,104,104,133,204,169,224,
133,206,162,0,160,0,177,205,145,203,20
0,208,249
1950 DATA 164,204,200,132,204,164,206,
200,132,206,232,224,5,208,232,96
1960 FOR I=0 TO 7:READ D
1970 POKE CHBASE+(58*8)+I,D:NEXT I
1980 DATA 0,0,0,4,34,72,37,255
1990 FOR I=0 TO 7:READ D
2000 POKE CHBASE+(56*8)+I,D:NEXT I
2010 DATA 255,247,253,223,239,251,255,
255
2020 FOR I=0 TO 7:READ D
2030 POKE CHBASE+(49*8)+I,D:NEXT I
2040 DATA 0,0,7,31,63,63,127,127
2050 FOR I=0 TO 7:READ D
2060 POKE CHBASE+(54*8)+I,D:NEXT I
2070 DATA 0,0,192,240,248,252,254,254
2080 FOR I=0 TO 7:READ D
2090 POKE CHBASE+(42*8)+I,D:NEXT I
2100 DATA 127,127,63,31,15,3,0,0
2110 FOR I=0 TO 7:READ D
2120 POKE CHBASE+(43*8)+I,D:NEXT I
2130 DATA 254,218,236,252,184,224,0,0
2140 RETURN
```

Get it right!

10 CP1 (Y)	370 E9J (H)	730 PFQ (Q)
20 CP2 (3)	380 P2P (9)	740 DCY (W)
30 CP3 (X)	390 N4D (S)	750 MQS (E)
40 UVN (Q)	400 9VG (6)	760 YNJ (5)
50 RMR (M)	410 95S (P)	770 ACX (O)
60 SAG (1)	420 8VK (D)	780 PLU (6)
70 COY (D)	430 PM6 (N)	790 MAW (F)
80 L7A (7)	440 WWR (E)	800 L7J (T)
90 UEW (8)	450 XVS (Q)	810 7VE (4)
100 4G8 (D)	460 W85 (R)	820 2R9 (U)
110 W7W (G)	470 WEN (7)	830 54E (W)
120 55F (1)	480 WL5 (G)	840 J62 (U)
130 JDS (O)	490 SA8 (6)	850 C47 (Q)
140 ON5 (K)	500 CUW (D)	860 WP1 (M)
150 O3W (S)	510 HGM (E)	870 8TW (N)
160 AWV (V)	520 DDL (6)	880 O5D (H)
170 EKX (5)	530 DRO (D)	890 SRT (3)
180 8XH (F)	540 C5L (2)	900 R1G (U)
190 588 (D)	550 AKL (V)	910 PHS (R)
200 T1C (N)	560 DC8 (L)	920 9F9 (O)
210 X27 (H)	570 DD8 (W)	930 9RT (9)
220 PM2 (J)	580 5DV (J)	940 599 (U)
230 9RO (S)	590 AY5 (K)	950 Q1S (1)
240 DCT (P)	600 DEM (4)	960 33V (S)
250 WVS (8)	610 RAA (C)	970 S2E (T)
260 E4S (S)	620 D3X (3)	980 DV1 (R)
270 8YQ (X)	630 C1F (3)	990 3AX (M)
280 CUF (8)	640 KVF (Y)	1000 VAK (J)
290 9N7 (T)	650 W3O (F)	1020 R1E (S)
300 K67 (T)	660 O6A (K)	1030 8V3 (W)
310 OGP (Y)	670 V15 (2)	1040 6F5 (3)
320 D3U (K)	680 UUJ (A)	1050 N1S (2)
330 E6W (G)	690 DYX (7)	1060 DAN (5)
340 EDE (R)	700 LNH (8)	1070 G4F (X)
350 T16 (Y)	710 1XT (K)	1080 4Q9 (W)
360 ECM (O)	720 COV (2)	1090 ET2 (7)

1100 VFK (2)	1460 QYU (K)	1820 1SV (Y)
1110 D4N (4)	1470 FKE (G)	1830 2J4 (C)
1120 N1W (9)	1480 DXN (9)	1840 TWO (N)
1130 34Y (6)	1490 X3R (4)	1850 T8E (2)
1140 XDE (5)	1500 44V (4)	1860 HSA (F)
1150 ACS (O)	1510 DMN (O)	1870 EDN (E)
1160 VTK (4)	1520 AJK (H)	1880 XC1 (Q)
1170 DHN (3)	1530 MAK (4)	1890 76S (Y)
1180 VQH (F)	1540 RER (E)	1900 CGA (S)
1190 REP (G)	1550 L4Y (N)	1910 DQD (5)
1200 VFD (1)	1560 QGV (3)	1920 Q1S (R)
1210 YQ6 (F)	1570 RYX (A)	1930 85R (J)
1220 Y51 (C)	1580 QW8 (7)	1940 YMC (A)
1230 SAN (2)	1590 RQ3 (F)	1950 9RT (D)
1240 6G1 (W)	1600 T84 (R)	1960 EXD (U)
1250 VVK (R)	1610 ODS (J)	1970 VP4 (W)
1260 DKN (X)	1620 FOA (M)	1980 GNE (C)
1270 K61 (P)	1630 MWT (T)	1990 F4D (Y)
1280 9RO (F)	1640 QCK (E)	2000 U25 (X)
1290 N9W (W)	1650 LKO (W)	2010 SSG (R)
1300 SLE (V)	1660 SO3 (8)	2020 DKE (9)
1310 23V (D)	1670 QPG (N)	2030 U95 (9)
1320 5WU (5)	1680 SFK (X)	2040 FHX (2)
1330 684 (W)	1690 S24 (D)	2050 DRE (K)
1340 NAQ (W)	1700 NF7 (8)	2060 UD5 (K)
1350 RKM (V)	1710 A7T (1)	2070 RUN (J)
1360 Q9T (1)	1720 N9Q (2)	2080 DXE (2)
1370 3J4 (T)	1730 QND (U)	2090 UF5 (1)
1380 35Q (T)	1740 TD8 (D)	2100 FJ3 (W)
1390 27S (V)	1750 N51 (A)	2110 DME (D)
1400 7HU (9)	1760 L5T (P)	2120 U55 (E)
1410 AK2 (R)	1770 NYG (E)	2130 RU5 (X)
1420 OGW (X)	1780 P13 (R)	2140 VPL (S)
1430 WOK (S)	1790 TFP (A)	
1440 DPN (V)	1800 DXN (8)	
1450 RYX (V)	1810 3C2 (E)	

MUG THE INDEPENDENT MicroLink User Group NEWSLETTER

Prime mover

It has happened! The old MicroLink computer, a Prime 850, has been honourably retired and a new Prime 9955 with brand new software eased in in its place. It is traditional that such undertakings never go entirely smoothly, and this one was no exception. On the morning of the Friday the old machine crashed (was it sulking?), and only managed to work for about an hour before being turned off for good. It was a long weekend for many MicroLink subscribers.

The system got a severe test on the Monday evening, as everyone came on to find out how much better things were. Of course, with so many people on line the effects were somewhat diluted, but as things have settled down, things like directory searches are much faster, logons take less time and some of the really bad delays of old should just be memories. Not all commands show equal improvement, however.

It's early days yet for the new computer, but over the next month MUG will be comparing the performance of the system with the old figures. As MicroLink expands, we'll need all the speed and space we can get...

The moving cursor writes...

...but on the bulletin board you can always DELETE one of your own messages. Some people have complained to MUG about blank messages, which look like someone has REPLY'd to an entry by mistake without meaning to say anything.

It's a good idea if you do this, to go back on to the bulletin board and read through until you find your message. After reading it, typing DELETE will remove it as if it had never been sent.

Not just a number

BEFORE the upgrade most people were known on the system by just their account numbers.

Now MAG95816 isn't the most memorable way to address someone, so it was possible to have your name added to the system directory so that other users could send mail to you in a slightly more natural manner. However, the way to get this done was never documented, and most people didn't avail themselves of the facility.

Since the upgrade, things are much better. Everyone now has a name, and by using the FIND command it takes a few seconds – again, a vast improvement over bygone days – to locate someone's ID by name.

And whereas even if you did have a name in the past it was backwards (as in GOODWINS.RUPERT), now it's a more legible FRED–BLOGGS. Which should go some way to making mail easier to address.

There's now even an opportunity for oneupmanship, as those who had their names before keep the original format.

So on any list of users the old hands stand out from the crowd, backwards but proud of it.

Online alternatives

THE last MUG newsletter mentioned the bulletin board. This is unique to MicroLink, but other Telecom Gold systems have similar areas, one of which MicroLink shares. That's the Noticeboard, and it differs from the bulletin board by being much more basic – it's impossible to SCAN or REPLY to messages, for example.

But lots of different systems on Telecom Gold can use it, so it's a good way to converse with someone who isn't a MicroLink subscriber but does use Gold. Typing >NOTICEBD will reveal both the good and the bad points of the area.

Also on MicroLink is the Memopad. This is yet another shared message system, with different categories to the BB and fewer options. Once you've tried both it and the BB it becomes clear why the former isn't used very much!

Garbage...

...or, as we British say, rubbish. Between your modem and the MicroLink computer are many opportunities for strange characters to introduce themselves into your call. For many, the problem is no worse than the occasional squiggly bracket turning up in a mail message. But sometimes the problem is persistent and debilitating. MUG has received some queries on how to solve this.

Firstly, if at all possible, try your equipment (especially the modem) on someone else's telephone line. Then try different telephone numbers for MicroLink. This all helps to amass proof to give to the BT engineer when he calls to check your line.

If the problem won't go away, then slower speeds can help. It's unlikely that a line which is unusable at 1200 baud will miraculously become crystal clear at 300, but for cases of intermittent corruption, dropping the baud rate can make a big difference.

Time, gentlemen, please

EVEN with the new computer, the speed at which commands are processed can vary considerably. Knowing what the factors are which govern this can lead to faster service and thus a reduced bill; something few MicroLinkers are averse to.

The biggest single-Prime knobbling factor is the number of users on the system at the time. You can find this out by typing >USERS, and the more people are about the slower things will be.

Peak time for MicroLink is from about 7 till 11 in the evening, as most non-business users take advantage of cheap telephone and MicroLink rates. But if you can hold out until midnight, then things ease up a lot.

From about two in the morning security backups are made – copies of all the data that's been added to the computer by users since yesterday. This is the other big slowing factor, and many a small hours user has been surprised by a sluggish response when there's nobody else about.

The very best time to use MicroLink is between five and seven in the morning. More often than not you can be the only person using half a million pounds'worth of computer and network, and the speed of response is only matched by the feeling of power and the nagging need to sleep.

Suggestions of material for inclusion in the MUG Newsletter should be sent to Rupert Goodwins on MAG95816

Connections in high places...



ANDRÉ WILLEY
takes a look at a neat and compact replacement for the Atari 850 interface box

MOST Atari 8 bit owners start out with a simple, relatively low-cost, cassette-based system with the idea of upgrading to disc drives, printers and other add-ons once they've mastered the basics.

The open design of the special peripheral bus, which allows you to connect the various devices in a long chain, makes this approach both simple and fairly versatile.

The main disadvantage of this method is that it means you are limited to using Atari's own somewhat limited range of peripherals, or at least ones which use its connector system. To use anything else such as standard Centronics or RS232 protocols you must buy an often rather costly interface unit.

ICD's P:R: Connection supplies both a Centronics and two RS232 connectors – for about two-thirds of the price and a fraction of the size of the old Atari module. This has been achieved by the use of a custom designed microprocessor known as the PRC9985-6 – a computer in its own right.

If you compare the P:R:'s layout to the maze of circuitry in an 850 you'll see just how much work this single chip must handle.

The interface is attractively packaged in a small grey plastic box which perfectly matches the 130XE. It draws its power from the micro, thus eliminating the need for yet another power supply to clutter up the desk, and connection is made via a moulded standard I/O cable. A socket is thoughtfully provided to allow you to add further items to the chain if you so desire.

The other three sockets follow the protocols laid down by the 850: The Centronics port is a 15-way D Connector and the two RS232 lines are wired via a pair of 9-way D Connectors, the same type as those used for joysticks. Operationally the P:R: Connection is almost identical to an 850, except for the lack of two of the latter's four RS232 sockets.

Any cable designed for the 850 will work with this unit, but full pin diagrams are provided for those who want to make their own leads. Both modem and printer cables are available from Frontier at £14.95 each and discounts are available for buying the complete kit.

The printer is accessed by using the standard P: device or via LPRINT from Basic, and it also functions correctly with every piece of commercial software that I tried. If you find that your particular type of printer requires an extra line feed character after each Return, a DIP switch inside the interface provides this facility.

Additionally, a second switch allows you to turn off the P: section of the interface – very useful if you're already using a direct-connect Atari printer and only require the RS232 mode.

The RS232 ports are accessed via the R1: and R2: handler which autoboot on power-up. If you are using a cassette system you will hear

Turn to Page 40 ▶

Centronics refers to a common system often used to connect printers and other items which are likely to be fairly close to your micro. The RS232 allows data to be sent over longer distances, but requires more work by the computer to sort it all out again.

These standards used to be provided by Atari's own 850 module for between £100 and £135, but this is not now easily available.

Many companies have helped fill the gap by developing straightforward Centronics printer interfaces, most of which come in the form of a cable which plugs into your I/O chain at one end and the printer at the other.

Unfortunately this leaves no option to add any further Atari-type peripherals to the end of the chain, since there is no provision for a second socket.

One company – Miracle Technology – released an RS232 interface cable designed only to work with its own software and modems. Mini Office II now provides a more sophisticated text communications package which will work with this lead, but most other comms software still requires an 850 – until now.

◀ *From Page 39*

an additional high-pitched beep just before the READY prompt appears as the driver code is automatically loaded from the interface's internal rom.

With a disc system you must specifically request the RS232 driver to load. With Dos 2.5 this means your boot disc must contain an Autorun.SYS file, as provided on your master disc. Other versions of Dos – such as Dos/XL and SpartaDos – provide external commands to boot the driver – which may be used as Autorun files themselves.

The driver loads itself at the current LOMEM point and adjusts all memory pointers, accordingly taking up an extra 1,813 bytes of ram over and above your particular Dos's requirements. It is nice to note that an old 850 bug – which could easily crash the computer if the Reset key was pressed – has been rectified.

A Dos 2.5 double-sided disc is supplied with the package and contains not only the Autoboot support files, but also three public domain communications packages – AModem version 7.4, RScope and 850 Express – all of which seem to perform admirably.

The RS232 driver can be controlled from Basic via XIO commands, and you may select various baud rates, stop bits, parity, translation and all the other settings which seem to go hand-in-hand with RS232. But it's probably much easier to use the comms software provided.

Unfortunately, there is no facility for adjusting the bitwise word length or for using split baud rates such as 1200/75. However, monitoring and control of DSR, CTS, CRX, DTR and RTS is available in case full handshaking is required.

ICD has made sure that the OS calls are identical to those used on the 850, so block output and concurrent input/output modes are available via the standard CIO calls.

Thoughtfully, the designers have even taken care of those few programs which use non-documented calls to the SIO system. All you need to do is load a binary file called PRC.SYS from the master disc before working with such software, and the P:R: Connection should completely emulate the 850.

This is a very useful device for anyone wishing to use modems or other RS232 devices, and certainly a bargain compared to the old Atari 850 interface. But do bear in mind the lack of a 1200/75 mode if you want to access a system that still insists on this speed.

Also, if all you want to do is plug in a Centronics-type printer you would probably be far better off getting a Centronics interface lead for around half the price.

Product: ICD's P:R: Connection
Price: £69.95 (incl. disc)
Supplier: Frontier Software, PO Box 113, Harrogate, North Yorkshire HG2 OBE.
Tel: 0423 67140

SOFTWARE Solutions

Your programming problems solved by ANDRE WILLEY

AS you would expect, I get quite a number of letters every month from Atari enthusiasts asking all manner of technical questions. But this month I received a most unusual letter from an Acorn computer user who is having trouble getting to grips with our somewhat non-standard serial I/O system. Bernard Beeston from Enfield in Middlesex writes:

I have an Alphacom 81 printer which is fitted with an Atari interface and I want to adapt it to work with my Acorn computer. Studying the printer I noted that it has a serial interface, but looking inside I find six wires – more than enough for RS232.

There is also the apparent absence of a clock in the interface, and I presume at least one of the extra lines carries a clock signal from the host computer – but apart from the obvious ground line I have no idea what any of the others do.

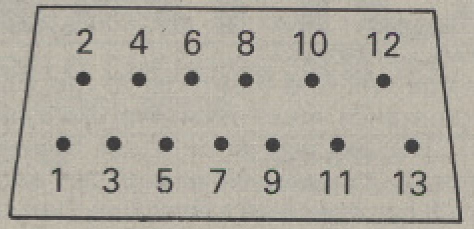
Could you help me with details of the signals this printer expects from an Atari computer, including the baud rate of the data and the frequency of a clock signal if such is required. Other details such as seven or eight bit data, and any parity bits and start and stop control protocol would also be helpful.

In short – the details I will need to design and make an interface from my own computer's RS423 and/or its Centronics output to allow me to use this printer.

In case there is any misunderstanding, the layout and numbering of the Atari printer plug would be helpful.

Well there's an interesting question! I'm glad you feel that we might be able to help other computer users. In fact, the information will also be of interest to any Atari owners who also want to experiment with the I/O. The interface standard is quite complex compared to normal RS232, but there is no reason why you couldn't write a software emulator for it.

The Atari serial line may be connected to any number of peripherals, so the system includes the ability to send device specific commands. Let's first take a look at the various pins on the 13-way serial I/O connector as shown below.



Serial I/O jack

1. Clock input
2. Clock output
3. Data input
4. Ground
5. Data output
6. Ground
7. Command
8. Motor control
9. Proceed
10. +5 volts ready
11. Audio input
12. +12 volts
13. Interrupt

The 13-pin serial I/O connector. Viewed looking at the micro from the outside

Pin 2 is driven by the host computer and supplies a 19,200 baud clock signal used to synchronise all data communication between the micro and its peripherals. A data bit from the computer commences when the clock becomes high – +5 volts. The clock will then return to zero half way through that data bit.

Any data sent from the peripheral back to the host computer is 180° out of phase and thus should commence when the clock line goes low – 0 volts.

Pin 3 is the host computer's data-in line – which could also be regarded as the peripheral's data-out since there is no pin reassignment within the I/O cable.

Pin 4 is the data ground line.

Pin 5 is the computer's data-out line – or equally the peripheral's data-in. A byte of information is always sent as eight data bits preceded by a logic zero start bit and followed by a logic one stop bit.

Pin 6 is a second data ground line – you may use this or pin 4.

Pin 7 is the line used to signify a command frame – more about this later.

Pin 10 might also be of use to you as it is held at +5 volts by an Atari computer – so dropping it low for a short time and then taking it high again should reset the printer if you get in a mess.

Now for the data packet format. There are two types of output – command frames and data frames. A command frame always comes first and indicates which peripheral the following data frame is destined for.

This command frame is signified by the lowering of the command line at pin 7 approximately 1,000 microseconds before the frame is sent. This will return high about 800 microseconds after the command frame is completed.

If the command frame has been received and is acceptable the periph-

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eral will return an ACK signal *($41)* – otherwise it will return a NAK *($4E)* and abort.

When an operation is to include data – for example, when being sent to a printer – the data frame will be sent out by the computer after a delay of approximately 1,300 microseconds.

The peripheral will once again respond with an ACK or a NAK. Finally it will send a COMPLETE signal *$43* to indicate satisfactory completion of the operation or an ERR *$45* if it was unable to finish the task for any reason.

The command frame always consists of five bytes: The device ID, the command byte, two auxiliary data bytes and a checksum. The ID for a printer is *$40* and the command for Write Data is *$57*.

The two auxiliary bytes contain device specific information – the first is not used by the printer but the second should be set to *$4E*. The checksum is calculated as the arithmetic sum of the preceding four bytes, with the carry added back into every addition.

The data frame format is very much simpler, consisting of just 40 bytes of printer data followed by a checksum of those bytes calculated in the same manner as that used for the command frame. If you only need to send a couple of bytes of data to the printer you should pad them out with non-printing characters such as nulls – Ascii zero.

Do you still want to design an interface? If so, I'd be most interested to hear how you get on. If you require any more information or the full interface specifications and timing diagrams I recommend Atari's own Technical Reference Notes for the Atari 400/800. Good luck!

Plotter problems

Now a less technical letter from **Mark Long** of Sleaford, Lincs who has a problem with AtariWriter Plus.

As I understand it from chapter four of the AtariWriter Plus Owner's Manual, I ought to be able to avail myself of all the facilities of my 1020 printer/plotter simply by inserting the appropriate instructions in my text.

On page 44 of the manual it implies that the Escape symbol will be displayed by typing Shift+Escape, then Escape again. However, I find that this action only displays the downward curly arrow normally given in the program by Option+Insert.

If I use Control+O followed by Shift+Escape and Escape and then the appropriate decimal codes, my printer merely prints the correct letter for that code rather than acting on the instruction.

Since the 1020 is listed as a device supported by AtariWriter Plus I find it most frustrating not to be able to use the different colours and letter sizes which should be available. What am I doing wrong?

It looks to me as though the manual was a bit off target when it describes the method of entering the Escape symbol. The key sequence it describes does indeed generate an Ascii code *27*, but the problem is that the authors of the program use code *27* to indicate an empty space which will be filled in by you at print time – normally selected using Option+Insert.

To get around the problem you should use the Control+O sequence, which does work correctly when you get the hang of it. First type the Control+O, followed by the number *027* – the Ascii code for Escape. Then type in either the character indicated in the manual if it is a normal keyboard key or another Control+O and the Ascii code if you can't enter it normally. Each Ascii code you require to send to the printer must be preceded by its own Control+O.

You will find that most of the 1020 commands must come first on a line of text, so you should set the left margin to zero. Now you can send each command on a fresh line then set your margin back to its original value.

Spartados and POINT

Next we have another online question from a modem user who likes to go under the nom de plume of **Irata** – even though he also answers to Steve.

I am using Spartados 3.2 and am having a big problem with the extended length NOTE and POINT commands. The manual says to POKE some numbers into memory and then use XIO 37,#IOCB,0,0,"D1:" instead of Basic's own POINT command.

This causes me problems if the file is already opened for update – using OPEN #IOCB,12,0,"D1:FILE" – the XIO command seems to alter the channel to a read-only status. As soon as I try to PRINT or PUT any data to the file I get an Error 135 indicating I am trying to write to a read-only file.

Also, even if I know that a channel was in fact closed before I use the POINT command, I still get an error when trying to OPEN it. For example:

```
10 CLOSE #1
20 REM The SpartaDos POKEs
30 XIO 37,#1,0,0,"D1:FILE"
40 OPEN #1,12,0,"D1:FILE"
```

gives me an Error 129 – channel already open.

As many of my files far exceed 32k this is proving to be a serious problem. Can you help me?

There seems to be a small bug in SpartaDos which relates to the extended POINT command – and not just to update mode files either. If you use the method described in the manual SpartaDos loses track of the data direction of the file. That is, while it still knows that the file is open, there is no record of whether it is an input or an output file.

This appears to be because the first auxiliary parameter of the XIO command somehow ends up in the data direction register giving a resultant direction of zero.

All you need to do is store your data direction byte – 4 for input, 8 for output, 12 for update and so on – in a variable and use that instead of the first zero in the XIO command. In your example this would result in XIO 37,#1,12,0,"D1:"

Steve and other modem users might be interested to know that I'm currently preparing a feature for a future issue of *Atari User* about online communications – or more specifically Atari 8 bit bulletin boards. Apart from the obvious major systems such as MicroLink there are many small, independently run bulletin boards scattered around the country. I'd like to hear from anyone who regularly uses this type of BB and of course from the sysops who run them.

Ideally I would like to compile a definitive list, so if you run an Atari 8 bit BB – that's either a bulletin board specifically for Atari 8 bit users or one that is actually run on an 8 bit machine – I'd like you to send me all the relevant details as soon as possible.

These should include the name, phone number and baud rates of the board, plus any other details such as the hardware and software used and its location, facilities, number of current users and so on. You can either write to me here at *Atari User* or leave me a message on MicroLink/Telecom Gold box number 72:MAG018.

● *And, that wraps it up for this time. Keep those letters coming in – especially if you're struggling with your first few programs on your new Atari 8 bit computer.*

ONE criticism commonly levelled at home computers is that they are anti-social. Certainly it's hard to imagine the whole family gathering around the latest mega-blaster from Rentokil Software, or eagerly setting out together on a Quest for the Bejewelled Bandicoot.

To redress this imbalance, here's an extremely simple gadget that will let your computer take a leading role in family entertainment.

Basically, it's a device to help you play quiz and panel games, and we've given you a couple to get you started.

Although such games are extremely popular, they can easily lead to arguments about who answered first, and whether they took too long. The Quizbox enlists your computer's help to provide an accurate time limit, and to detect which of up to five contestants was the first to press his or her answer button.

It eliminates disputes, and introduces a level of fairness which no human quizmaster could match.

You can if you wish, wire the five buttons into a single keypad which will respond only to the first key pressed – ideal as an answering system for multiple-choice questions.

You could also use it in alarm networks, sports timing systems or any similar applications where you need to know which of several events happened first. It's one of the simplest gadgets ever published. There's no printed circuit board, no need for any knowledge of electronics, and you can even get by without any soldering.

Fingers on the button

LEN GOLDING enters the realms of family entertainment with his latest D-I-Y gadget, Quiz box

The hardware is little more than a set of five push-button switches, each of which is connected to an input line at the joystick port. All the scanning, latching and priority lockout functions are performed by a machine code routine which can easily be incorporated into your own Basic programs.

Operating the Quizbox is easy. The quizmaster first resets the system by pressing any key on the computer keyboard, then reads out the question.

The machine code routine scans the five switches and, if one is pressed during the time allowed, it locks out the other four and returns to Basic with the winning number held in address 1791.

If no contestant responds within the time limit, it puts 0 into that address and locks out all switches until the quizmaster resets everything.

Since the system responds in less than one-tenth of a millisecond, the chances of two players pressing at exactly the same moment are too small to bother about. However, if this unlikely event should occur, the machine code routine will give priority to players in the order 5,1,2,3,4.

The time limit is preset by a parameter in the USR call which sets the machine code running – see line 30 of Program I. It can be any whole number from 0 to 65535, each unit corresponding to one-fiftieth of a second – 50 sets the time limit at one second, 500 makes it ten seconds and so on.

Timing starts as soon as the quizmaster presses a key, so allowance must be made for the number of seconds required to read out the question.

Now let's look at how to construct the device. A terminal block – see Figure I – is used to connect the various wires, though you could use a tagboard and solder them if you prefer.

The first job is to cut the joystick extension lead about 20cm from the end which plugs into the port, and strip back about 10cm of the outer black sheath.

This reveals nine coloured wires, and the next job is to sort out which wire goes to which pin inside the moulded plug. Unfortunately the colour codes differ from one lead to another, even in batches bought from the same supplier, so you'll need some kind of continuity tester to identify the connections. A multimeter

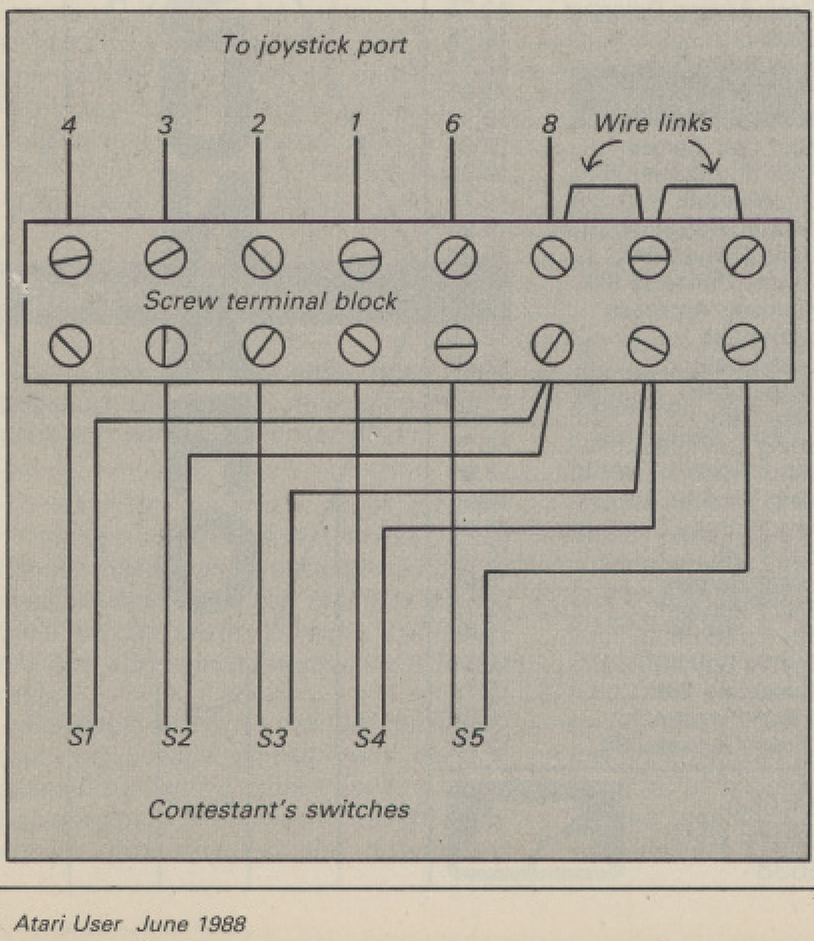


Figure I: Connection of switches to joystick port

set to measure resistance is easiest, but you could use a car-type continuity probe, or just a simple bulb and battery arrangement.

Slot an ordinary household pin into each of the joystick lead's sockets in turn and use the continuity tester to determine which colour is connected to that socket. Remember, if you're looking into the moulded plug, the top right hole corresponds to pin one and the bottom right hole to pin nine, as shown in Figure II. Armed with this information, you can wire up the computer side of the terminal block.

The five contestants' switches can either be mounted on a long board or fixed to flying leads. The board system is easier, neater and a little cheaper, but flying leads permit more flexibility in seating arrangements.

The prototype used inexpensive panel-mounting switches and small plastic boxes, to keep costs down. Alternatively you can buy special pendant bell-push switches which can be fixed directly on to a flying lead without soldering, but these are relatively expensive.

Each box is connected to the terminal block by a flexible lead which must have at least two cores. The wires will take very little current, but there's likely to be a good deal of mechanical strain, so choose a good-quality, very flexible lead if you can.

We used lengths of joystick cable left over from previous projects, with several of the cores twisted together for extra strength. As you wire each switch to the terminal block, mark it in some way to show its number.

When everything is correctly wired, plug the gadget into joystick port one and run Program I. This is a skeleton routine which shows how everything works in its simplest form. You have about five seconds to press any button before the *Run out of time* message appears. Check that each button produces the correct number on screen. If not, check the wiring again.

When Program I works correctly have a go with Program II. This is a more user-friendly version and can be used in its existing form for TV-style quiz games.

It produces a tidy display in Graphics 2, adds sound to indicate button pressed or out of time, and lets you use names instead of numbers to identify the contestants. The time limit is set by variable *TL* in line 20

When you run this program you will first be asked to type in the players' names. The first should be the name of the player controlling button one, the second button two and so on. If there are less than five buttons in use, just press Return when asked to name the missing players.

If during the course of play

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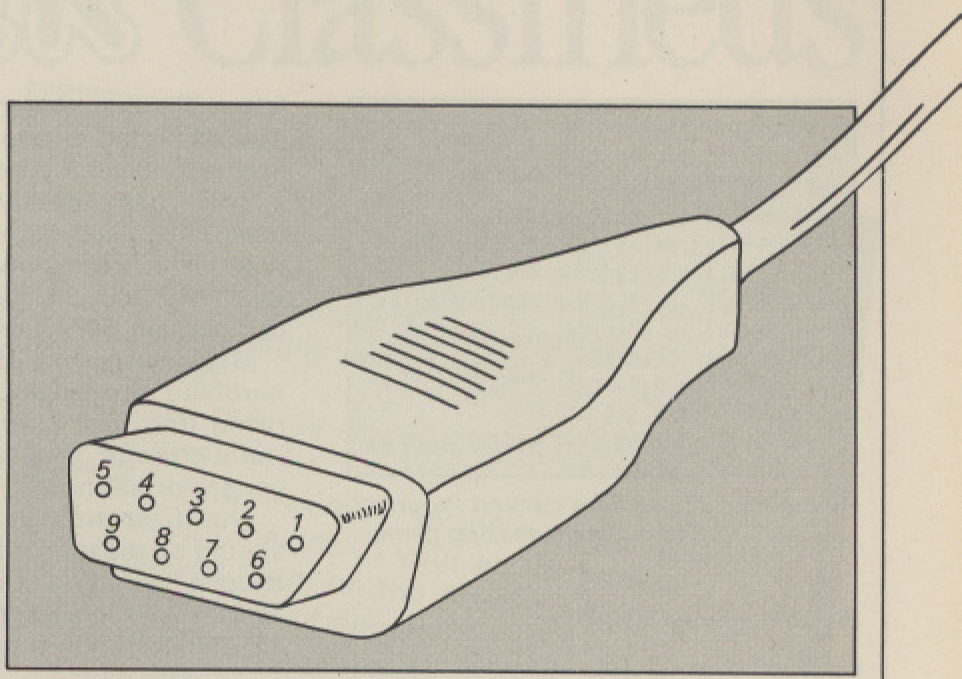


Figure II: Pin numbers at joystick extension lead plug

```
10 REM Program I: Quizbox skeleton pro
gram
20 FOR X=0 TO 52:READ D:POKE 1536+X,D:
NEXT X:GOTO 70:REM Insert machine code
30 X=USR(1536,250):REM Start m/c code
routine. 2nd number sets time delay
40 X=PEEK(1791):REM Find which player
pressed first
50 IF X=0 THEN ? "RUN OUT OF TIME":GOT
O 70
60 ? "PLAYER NUMBER ";X
70 ? :? "Press any key to start timer"
80 POKE 764,255
90 IF PEEK(764)=255 THEN 90:REM Wait f
or any keyboard key to be pressed
100 ? CHR$(125):GOTO 30:REM Clear scre
en and start again
110 DATA 104,104,133,204,104,133,203,1
69,0,133,19,133,20,173,120,2,10,13,132
,2
120 DATA 73,31,208,16,165,19,197,204,1
44,239,165,20,197,203,144,233,162,0,24
0,9
130 DATA 162,5,24,106,176,3,202,208,25
0,142,255,6,96
```

Program I: Quizbox skeleton program

```
10 REM Program II: User-friendly timer
and priority indicator
20 TL=500:REM Time limit (500 = Ten se
conds)
30 DIM A$(20),P1$(20),P2$(20),P3$(20),
P4$(20),P5$(20),P6$(20)
40 P6$="CAN'T IDENTIFY"
50 ? CHR$(125):X=1
60 GOSUB 240:INPUT P1$:IF P1$="" THEN
P1$=P6$
70 GOSUB 240:INPUT P2$:IF P2$="" THEN
P2$=P6$
80 GOSUB 240:INPUT P3$:IF P3$="" THEN
P3$=P6$
90 GOSUB 240:INPUT P4$:IF P4$="" THEN
P4$=P6$
100 GOSUB 240:INPUT P5$:IF P5$="" THEN
 P5$=P6$
110 GRAPHICS 2:SETCOLOR 2,0,0:POKE 752
,1:REM Set up display and clear text c
ursor
120 FOR X=0 TO 52:READ D:POKE 1536+X,D
:NEXT X:GOTO 160:REM Insert machine co
de routine
130 DATA 104,104,133,204,104,133,203,1
69,0,133,19,133,20,173,120,2,10,13,132
,2
140 DATA 73,31,208,16,165,19,197,204,1
44,239,165,20,197,203,144,233,162,0,24
0,9
150 DATA 162,5,24,106,176,3,202,208,25
0,142,255,6,96
160 ? CHR$(125):? :? "   Press any ke
y to start timer ":REM Three initial s
paces
170 POKE 764,255
180 IF PEEK(764)=255 THEN 180:REM Wait
 for any keyboard key to be pressed
190 ? CHR$(125):? #6;CHR$(125):REM Cle
ar Graphics screen and text window
200 ? :? "              TIMING.. ":REM
 Fourteen initial spaces
210 GOSUB 260:REM Execute the entire Q
uizbox routine
220 GOTO 160:REM Next cycle
230 END
240 ? :? "Please type the name of play
er ";X
250 X=X+1:RETURN
260 X=USR(1536,TL):REM Start timing an
d scanning switches
270 X=PEEK(1791):REM Result is stored
here
280 IF X=0 THEN A$="OUT OF TIME":GOTO
340
290 IF X=1 THEN A$=P1$:GOTO 340
300 IF X=2 THEN A$=P2$:GOTO 340
310 IF X=3 THEN A$=P3$:GOTO 340
320 IF X=4 THEN A$=P4$:GOTO 340
330 IF X=5 THEN A$=P5$
340 H=INT((20-LEN(A$))/2):REM Horizont
al offset to centralise A$
350 POSITION H,6:? #6;A$
360 IF X=0 THEN 410
370 FOR S=100 TO 0 STEP -3
380 SOUND 0,S,10,8:NEXT S
390 SOUND 0,0,0,0
400 RETURN
410 SOUND 0,250,10,8
420 FOR W=1 TO 200:NEXT W
430 SOUND 0,0,0,0
440 RETURN
```

Program II: User-friendly timer and priority indicator

```
195 GOSUB 450
450 FOR N=1 TO 3
460 L=INT(RND(0)*26)+65:REM Generate a
 random letter code
470 POSITION N*2+5,1:? #6;CHR$(L):REM
Print the corresponding letter
480 SOUND 0,40,10,8:REM Short beep as
each letter is printed
490 FOR W=1 TO 40:NEXT W
500 SOUND 0,0,0,0
510 IF N=3 THEN 540
520 FOR W=1 TO 250:NEXT W:REM Short pa
```

Program III: These lines convert Program II into a word-making game

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someone presses an unassigned button, the computer will accept the input, but will print *Can't identify* in place of the player's name.

Program II can be modified to make a self-contained quiz game by inserting extra subroutines after the main code. For example, if you add the extra lines shown in Program III, you will get a word-making game reminiscent of those used in Catchword and Masterteams.

When you reset the timer, three random letters will be displayed on screen. Contestants have to think of a word beginning with the first letter, and containing the other two letters in their printed order. The quizmaster, aided by a dictionary, has the final say on any word's validity.

The extra lines in Program IV will give you another simple word game – the type known as Spin Quiz or Tell-me Quiz. The computer randomly picks a category, such as a boy's name, an animal or a country, then displays it on screen, followed by the words *Beginning with* and a random letter. The first player to come up with an acceptable answer – as judged by the quizmaster – wins the point.

You can easily change the categories used, or add extra ones of your own. Each new one must start with *A$=* and end with RETURN, and can contain up to 20 characters.

Make sure that all the extra line numbers form an unbroken sequence, rising from 550 in increments of ten, then change the random number generator at line 270 to suit.

The first number after RND(0) should be the total number of items to choose from. For example, if you add 10 more categories, making a total of 40, line 450 should be changed to:

```
450 Q=INT(RND(0)*40)*10+550
```

This will now generate a random line number within the range 550 to 940.

For the more daring, Program V is a short machine code listing that emulates the Basic routine to drive the Quizbox. It shows how the joystick ports can be used for five bit input.

Other subroutines can easily be devised for the Basic programs to suit your own requirements. How about a program which produces a random arithmetic sum on screen? Or one which displays letters, simple words, colours or shapes for pre-school children to identify?

An element of competition often provides extra incentive for learning, and quiz games can hold a youngster's attention for quite long periods. Used sensibly, the Quizbox could introduce a new dimension to classroom or youth group activities, as well as providing hours of family entertainment.

THE PARTS REQUIRED

The parts used are not of a critical make, and suitable versions can usually be found in local electrical, electronic and computer stores:

5 push-button switches – must be push-to-make

6 small plastic boxes

Approximately eight metres of two-core cable

1 2Amp terminal block

1 joystick extension lead

```
195 GOSUB 450
450 Q=INT(RND(0)*30)*10+550:REM Select
 a random line number from 550 to 840
460 L=INT(RND(0)*26)+65:REM Generate a
 random letter code
470 ? #6;CHR$(125):GOSUB Q
480 H=INT((20-LEN(A$))/2):REM Horizont
al position to centralise A$
490 POSITION H,0:? #6;A$:POSITION 3,2:
? #6;"beginning with ";
500 FOR W=1 TO 500:NEXT W:REM Short de
lay
510 SOUND 0,50,10,8
520 FOR W=1 TO 20:NEXT W:SOUND 0,0,0,0
:REM Short beep
530 POSITION 9,4:? #6;CHR$(L):REM Prin
t the random letter
540 RETURN
550 A$="a boy's name":RETURN
560 A$="a girl's name":RETURN
570 A$="an animal":RETURN
580 A$="a sport or pastime":RETURN
590 A$="a musical instrument":RETURN
600 A$="a lake or sea":RETURN
610 A$="a job or trade":RETURN
620 A$="a type of food":RETURN
630 A$="a river":RETURN
640 A$="a flower":RETURN
650 A$="a vegetable":RETURN
660 A$="a hobby":RETURN
670 A$="a pop group":RETURN
680 A$="a t.v. programme":RETURN
690 A$="a country":RETURN
700 A$="a colour":RETURN
710 A$="a tree":RETURN
720 A$="a proverb":RETURN
730 A$="a famous author":RETURN
740 A$="a fish":RETURN
750 A$="a song title":RETURN
760 A$="a cartoon character":RETURN
770 A$="a film or t.v. star":RETURN
780 A$="an item of clothing":RETURN
790 A$="an historical figure":RETURN
800 A$="a famous building":RETURN
810 A$="found on a beach":RETURN
820 A$="found in an office":RETURN
830 A$="found in a garage":RETURN
840 A$="found in a garden":RETURN
```

Program IV: These lines convert Program II into a letter-quiz game

```
10 ;Program V: Source code for USR rou
tine in all Quizbox programs
20 HOLD=$6FF
30 LIMIT=$CB
40 RTCLOK=$13
50 STICK0=$278
60 STRIG0=$284
70  *=$600
80  PLA             Clear 'No. of par
ameters' byte
90  PLA
0100  STA LIMIT+1     Time limit, high
byte
0110  PLA
0120  STA LIMIT       Time limit, low b
yte
0130  LDA #0          Start timer from
0
0140  STA RTCLOK
0150  STA RTCLOK+1
0160 LOOP
0170  LDA STICK0      Read Stick in por
t 1
0180  ASL A           Shift all 4 bits
one place left
0190  ORA STRIG0      Put trigger value
 at bit 0
0200  EOR #31         Invert all five b
its
0210  BNE STORE       Branch if any but
ton pressed
0220  LDA RTCLOK      Check elapsed tim
e
0230  CMP LIMIT+1     against time limi
t
0240  BCC LOOP        Branch if limit n
ot reached
0250  LDA RTCLOK+1
0260  CMP LIMIT
0270  BCC LOOP
0280  LDX #0          No key pressed in
 time = 0
0290  BEQ DONE
0300 STORE
0310  LDX #5
0320  CLC
0330 NEXT
0340  ROR A           Read each bit in
turn
0350  BCS DONE        Branch on first
1'
0360  DEX
0370  BNE NEXT
0380 DONE
0390  STX HOLD        X holds position
of first '1'
0400  RTS             Return to Basic
```

Program V: Source code for USR routine in all Quizbox programs

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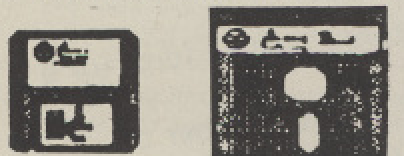
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SAVED FOR POSTERITY

£10 LETTER

I TYPED in the excellent 3D Drawing routine from the March 1988 issue of Atari User and made some quite spectacular drawings with it. Unfortunately, they were erased never to return when the computer was switched off.

Because of this I started to look for a way of keeping the magnificent drawings I had made. Looking through some back issues of Atari User I came across the Graphics 8 screen dump routine for the 1029 printer in the September 1985 issue.

After adding it – and a couple of extra lines – to the original program, I had the perfect way of making hard copies on my trusty 1029.

The extra lines that you will need to add are:

```
416 ? "PRESS P FOR PRINT"
417 ? "PRESS ANY KEY FOR ANG
LE"
418 CLOSE #1:OPEN #1,4,0,"K:
":GET #1,A:IF A=80 THEN GOSU
B 20000
540 NEXT L:GOTO 416
```

– Philip Thorpe-Willett, Redcar, Cleveland.

Helpful Zybex review

I WOULD like to thank you for the article in the March 1988 issue of Atari User about Zeppelin Games. I was very interested to read about its new super game for the Atari – Zybex. The article praised it rather a lot so I decided to buy it.

After playing it solidly for a week I came to the conclusion that the article was perfectly correct in its appraisal. It is absolutely wonderful and totally addictive in its game play with the sound and graphics being astoundingly good.

I have bought Zeppelin's other game, Speed Ace and it's also a pleasure to play. Thanks for the article that introduced me to the game. **– Mark Gilchrist, Ware, Herts.**

Point well taken

IN your March 1988 issue there was an excellent 3D drawing program by Kevin Edwards. However, there are a couple of little discrepancies in the listing. The first modification that the program needs a fix to stop it plotting an unwanted point on screen.

Just add:

```
71 IF STRIG(0)=0 THEN 71
```

The program also produces an error message if you plot a point off the screen. This can be avoided by adding two new lines:

```
505 TRAP 515
515 TRAP 530
```

Once these are added the program will run and function perfectly. **– Thomas M. Hill, Aston, Oxford.**

Fooled by Buster

AFTER reading the April 1988 issue of Atari User I came across the Checksum Buster program.

What a wonderful and revolutionary idea for entering programs – just type in the checksums and away the routine goes, recreating the listing for you. So I typed it in, checked it with Get it Right! and followed the instructions perfectly.

And what did I find? What a crafty devil André Willey is and what an April fool I am. **– Stephen Mitchell, London.**

America calling

I AM writing to tell you of an experience I had when phoning around to find out about a small problem I had with Alternate Reality: The Dungeon. The bug I encountered involved making a back-up of my character disc. It always ended up with a bad sector, which meant I couldn't re-access the disc, thus losing my characters.

I phoned my retailer who told me he'd also had a lot of problems, but only with disc three. He advised me to contact US Gold. I did this and spoke to Paul Sutton, but he hadn't heard of this problem, so he told me to give Datasoft a ring.

I phoned the company and spoke to Mrs Carol Dixon who told me that she would try and find out what the problem was. The very next day I received a phone call from America.

It was from Kathi Trembley of Intelli Creations Inc. of California – the person who wrote the Dungeon Guide. She explained that

Turn to Page 50 ►

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CHECK THAT PLUG

HERE is a warning for readers who like me, enjoy building Len Golding's gadgets. Having decided to build the Epson interface – featured in the April 1987 issue of Atari User – I bought two joystick extension leads from the local Tandy store.

While connecting them to the circuit board I checked them with a meter. To my horror I found that even though they had the same coloured wires as the leads I had bought for the last gadget they terminated at different pins in the plug.

So if you are attempting to build this gadget and have bought a Tandy joystick lead, the circuit will not work and could even damage the board. The new connections are as follows:

Connector	Cable colour
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Grey
8	White
9	Black

I hope that this will be of some use to other readers. **– T. Gigg, Kingswood, Bristol.**

◀ From Page 49

you have to re-format your back-up disc to clear all the sectors before copying to it – now that is what I call customer service.

Other readers may also be interested to know that three versions of the game are available and all have bugs. Version 1.9 is no good at all, 2.0 has bugs on disc two and won't let you cross the river Stong and 2.1 has bugs on disc three.

A new version 2.2 is supposed to be coming out shortly that has no bugs in it. – **David Parrish, New Milton, Hampshire.**

A stitch in time . . .

I HOPE you can help me to solve a knotty problem. My wife has informed me that computer programs are available to help machine knitters create patterns using various types of yarn and stitches.

I thought about writing such a program myself but after reading through the knitting machine manual I gave up this idea. So please appease my mind and tell me if there are any programs available that will work on my 130XE. – **D. Klastaitas, Carluke.**

● Unfortunately, to our knowledge there are no programs written specifically for the Atari to create knitting machine patterns. Do any of our readers know of such a program? If so, please write in and tell us.

Better class of programs

I'M a new reader to Atari User and I would like to congratulate you on producing a superb magazine.

I have recently swapped my old BBC Micro for an Atari 130XE and 1050 disc drive and I am over the moon with it. After many years as a primary school teacher I often found myself in the situation of writing educational programs for the children and I must admit I was getting a little stale on the BBC Micro.

But now my Atari has given me a whole new outlook to programming. Text modes one and two offer large sized multi-coloured text and the GTIA graphics modes are wonderful for drawing rainbows and other colourful displays.

Thanks to your excellent programming series, I have quickly grasped how to produce simple animation. I am now working on a simple game for the children in my class to play.

So once again, many thanks for a superb magazine, and keep up the good work. – **Bettie Gosling, Reddish, Stockport.**

● Why not send your programs to us for possible publication in *Atari User*?

Gauntlet II?

PLEASE could you tell me if US Gold are planning to release Gauntlet II for the 8 bit Atari? I enjoyed playing the Deeper Dungeons and would like to see Part II released. – *S. Turpin, Market Rasen, Lincolnshire.*

● At present US Gold has no plans to release the game

American scene

JUST before Christmas my parents took me on holiday to America. We were there for nearly a month and it worked out to be an ideal opportunity for me to take a look at the 8 bit Atari scene over there.

I was very impressed by the support the Atari gets.

GOING ROUND IN CIRCLES AND GETTING SOMEWHERE

BEING very new to computing I am having problems with certain fundamental elements of Atari Basic. I was trying to write a simple program to draw circles, but I couldn't seem to get it right. Also, can you explain to me what an array is? – **Michelle Simpson, Slough, London.**

● Sometimes drawing circles in Basic can involve more work than it's worth. Here is a simple program to draw one in Graphics 8:

```
10 GRAPHICS 24:SETCOLOR 2,0,0
20 COLOR 1
30 FOR DRAW=1 TO 800
40 A=A+0.05
50 X=SIN(A)*50:Y=COS(A)*45
60 PLOT X+160,Y+85
70 NEXT DRAW
80 FOR HOLD=1 TO 1000:NEXT HOLD
```

An array can be thought of as a pile of boxes stacked on top of each other in which you can store numbers.

In Atari Basic these boxes are numeric variables to which you can assign various values and then do mathematical calculations with them. Each array must have a name – it can be the same as you would give an ordinary variable, but following this there must be one or more numbers inside brackets. These indicate which boxes – or *elements* – in the pile are being referred to.

Before you attempt to use an array you must DIMension it. But there is a difference between DIMensioning an array and a string variable.

When you DIMension an array you are telling the micro how many boxes or *elements* you require, and the name you are assigning to them as a group. But when you DIMension a string you are telling it the maximum number of characters it can contain.

Arrays can be very useful when you want to assign values to variables very quickly. For example, imagine attempting to write lines like this in your program all the way up to 100:

```
10 ARRAY1=1
20 ARRAY2=2
30 ARRAY3=3
```

Instead, you can use an array to assign these values for you with the following routine:

```
10 DIM ARRAY(100)
20 FOR A=1 TO 100
30 LET ARRAY(A)=A
40 NEXT A
```

If you run this program and then tell the computer to print ARRAY(50) it will print 50 and this value will remain the same unless you change it or switch the micro off.

If you type PRINT ARRAY(25)+ARRAY(50) you will get 75 because the computer has remembered what numbers were assigned to the array. This technique is very useful and can speed up program execution.

If you define an array at the beginning of a program and then plot your points relative to the results, instead of waiting for the micro to calculate them each time it needs the information, it will save lots of time.

Arrays, and their counterparts matrices, will be covered in detail in our programming tutorial series in the near future.

Most of the computer shops I visited stocked all of the Atari hardware and shelf after shelf of software greeted my greedy eyes – it's a shame that companies over here don't follow their policy.

There appears to be lots of companies over there still writing new games and business software all the time. It just goes to show how popular the Atari 8 bit still is in America. I also bought some of the magazines written specifically for the Atari range, but I must say that Atari User is better than all of them.

They all seem to be moving more and more towards the ST, leaving around 20 pages for the XL/XE scene – whereas you have 62 pages devoted to the best 8 bit on the market. – **Robert Midgley, Maidstone, Kent.**

LET SOFTWARE HOUSES KNOW HOW YOU FEEL. . .

I HAVE been reading Atari User for over two years now and it is a brilliant magazine. I always read the mailbag section as I find it very interesting, especially in the February issue.

In it there was a letter from Martin Osborne of Wimbledon complaining about the lack of software for the 8 bit Atari. In the April issue I read some letters from people who were in total agreement with him.

Why is it that software houses like US Gold, Ocean, Imagine, Gremlin Graphics, Hewson, Elite, Activision, Domark and many more always claim that they are releasing a game across all formats when they don't?

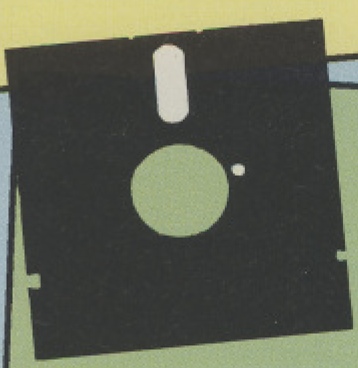
They always ignore the Atari, a machine that can match and surpass in terms of quality any other 8 bit machine on the market. It can also do some tasks that certain 16 bit micros can't.

Why is it that some companies produce games for the Atari and only ever release them on the Continent? The time has come for the thousands of Atari owners in this country to let the software houses know how we all feel.

We must all write to them and let them know there is still a market for this superb machine. If we don't we may never see another game produced again. – **Stephen Buxton, Normanby, Middlesbrough.**

● The ball is in your court, software houses. We would like to hear your reactions to this and many other letters on the same subject which are sitting in our in-tray.

10 fabulous programs from your favourite Atari 8 bit magazine!

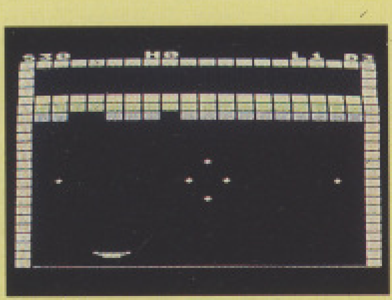


Ten of the Best Games Volume II

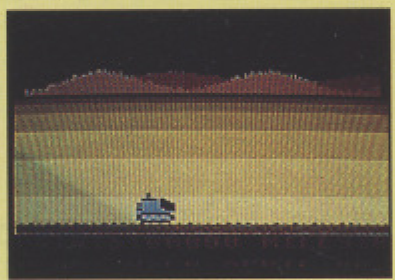
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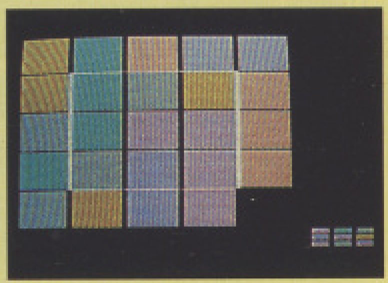
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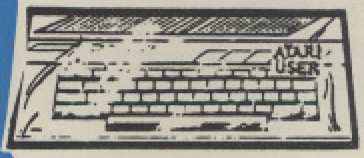
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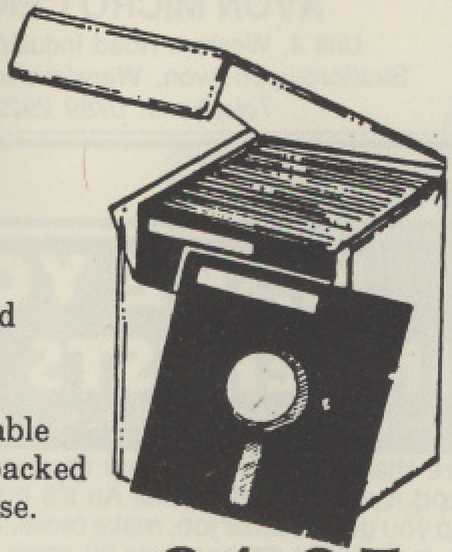
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